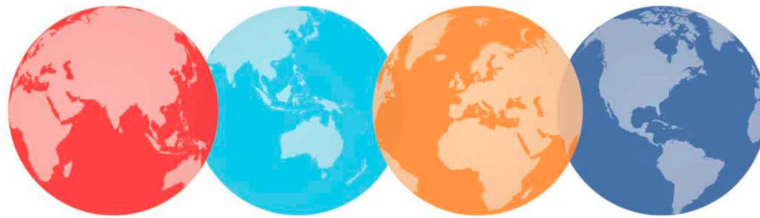
AAU ANGLO AMERICAN UNIVERSITY



IFRS:

GLOBAL RULES & LOCAL USE

Prague, October 11–12, 2018

Anglo-American University, Prague – Czech Republic

PROCEEDINGS OF THE 6th INTERNATIONAL SCIENTIFIC CONFERENCE

Anglo-americká vysoká škola, z.ú.
Letenská 5, 118 00 Praha 1
Czech Republic

Editors

doc. Ing. Irena Jindřichovská, CSc., Anglo-American University, Prague

Ing. Dana Kubíčková, CSc., University of Finance and Administration, Prague

Reviewers

doc. Ing. Jaroslav Wagner, PhD., University of Economics, Prague

doc. Ing. Marie Paseková, Ph.D., Tomáš Baťa University, Zlín

Authors only are responsible for the content, bibliographical references and language correctness of this publication.

© Anglo-American University / Anglo-americká vysoká škola, z.ú., Prague / Praha, 2018

All rights reserved

ISBN 978-80-906585-7-8

Content

Introduction 5

Reporting and IFRS

The Scope of Tax Information in the Financial Statements of Polish Companies
Lukasz Furman, Witold Furman 7

Financial Result in the Light of Tax and Accounting Regulations in Poland
Lukasz Furman, Kacper Kandefer, Małgorzata Lorens 15

Goodwill – An Accounting Conundrum
David John Muir 24

International Standards on Auditing – Risk-Based Audit –Directions of Change
Ewa Grabowska-Kaczmarczyk, Iwona Mazur-Maślanka 31

Usage of International Accounting Standards (IAS) in Central and Eastern Europe
Dagmar Čámská, Jiří Klečka 45

Application of IFRS 15 Revenues from Contracts with Customers in the Company in the Czech Republic
Marian Vdoviak, Marta Stárová, Enikő Lörinczov, Hana Vostrovská 56

Outcomes of IFRS Adoption on Financial Reporting Quality: A Review of the Literature
Alexandra-Gabriela Marina 68

Exploration of the Ethical Profile of the Romanian Accountants and Women in Accountancy
Cristina - Florina Țicoi 79

Cash Flows in Entities Threatened with Bankruptcy – The Case of Companies Listed on the Warsaw Stock Exchange in 2015–2017
Tomasz Maślanka, Iwona Mazur-Maślanka 89

IFRS in Italy: Some History and Some Critical Aspects
William Neal, Pietro Andrea Podda 99

The Effects of Implementation Of IFRS 9 in Financial Statements of Banks in Poland
Patryk Dunal, Mariusz Andrzejewski, Paweł Ożga 104

Bankruptcy Accounting – Reorganization
Jan Hospodka, Monika Randáková 115

Relationships Between Profitability and the IFRS Application on an Example of the European Listed Companies
Marcin Kędzior, Dorota Kędzior, Mariusz Andrzejewski 127

Reality of E-Reporting of Annual Accounts of SMEs in the EU – McDonald´s, BurgerKing, KFC and Subway Case Study
Radka MacGregor Pelikánová, Robert MacGregor 142

Quantitative Economics and Management

Estimating Gravity Model in the Czech Republic: Empirical Study of Impact of IFRS on Czech International Trade
Erginbay Ugurlu, Irena Jindřichovská 159

Modelling the Dynamic Conditional Correlations: The Case of Cobalt and Lithium Price Increase and Volatility of Tesla Motors Inc. Shares
Petr Seďa, José Carlos Casas-Rosal, Juan Antonio Jimber Del Río, Nuria Ceular Villamandos 172

The Accuracy of Associative Graph Data Structures in Business Bankruptcy Prediction
Joanna Wyrobek 182

Impact of CSR Reports on PSE Listed Companies' Income
Vladislav Pavlát, Jan Lánský 200

CSR / Integrated and Non-financial Reporting

Non-Financial Reporting in Czech Beverage Industry
Irena Jindřichovská, Dana Kubickova, Vladimír Nulíček 210

Information on Risks in the Integrated Reports of the Leading Capital Groups in the Fuel Sector in Poland
Ewa Wiktoria Babuśka 219

Analysis of Non-Financial Information of the Companies Listed on Bucharest Stock Exchange
Alexandra-Oana Marinescu 235

Approaching Value Creation from an Integrated Reporting Perspective
Ioana Sofian 247

Comparative Analysis of Voluntary and Mandatory Integrated Reporting Practices
Alina Bratu 261

Impression Management / Business Strategy (MA and PhD student section)

Media's Reaction to Impression Management Strategies
Maria-Silvia Săndulescu 274

Self-Serving Causal Attributions in the Annual Reports – A Longitudinal Case Study
Maria-Silvia Săndulescu 284

Industrial Organization

Possibilities to Control Volume Of Production in CVP Analysis: An Example of Companies Providing Taxi Services
Kinga Bauer, Marek Bauer 296

Stakeholders Salience in Energy Sector
Liliana Feleagă, Bogdan-Ştefan Ionescu, Mihaela Dumitraşcu 310

Bank Debt Maturity and Book-Tax Conformity of Private Companies: Evidence from Poland
Anna Białek-Jaworska, Piotr Wójtowicz 318

Methodology /Interdisciplinary Works

Methods to Prevent Forgery of Accounting Data
Pavla Koťátková Stránská, Josef Košťálek 333

Accounting in Comparison to other Scientific Disciplines
Konrad Stępień 341

Summary and final comments 348

List of authors 349

Introduction

Attached are the proceedings of the **6th International Scientific Conference** entitled **IFRS: Global Rules & Local Use**, at Anglo-American University in Prague on October 11–12, 2018.

The proceedings include contributions authored by conference participants presented during the conference. They have been reviewed and accepted by the conference editorial team and international external reviewers.

The program is as follows:

Thursday, October 11th:

- Conference opening and welcome
- Opening plenary session
  Presentation of conference keynote speakers (Lubomír Lízal, David Alexander, Anne Jeny and Alice Machova)

- Afternoon section II – Reporting and IFRS
- Afternoon section II – Quantitative Economics and Management

- Afternoon section III – Reporting and IFRS

Friday, October 12th

- Morning section I – Plenary session
  Presentation of conference keynote speakers II (Martin Tesař and Josef Horák)

- Morning section II – Reporting and IFRS
- Morning section II – CSR / Integrated and Non-financial Reporting

- Morning section III – Reporting and IFRS
- Morning section III – CSR / Integrated and Non-financial Reporting

- Afternoon section I – Reporting and IFRS
- Afternoon section I – Impression Management / Business Strategy (MA and PhD student section)

- Afternoon section II – Industrial Organization
- Afternoon section II – Methodology / Interdisciplinary Works

CREATORS OF THE PROCEEDINGS:

- doc. Ing. Irena Jindřichovská, CSc.
- Ing. Dana Kubíčková, CSc.

Prague, December 4, 2018

ISBN 978-80-906585-7-8

Reporting and IFRS

THE SCOPE OF TAX INFORMATION IN THE FINANCIAL STATEMENTS OF POLISH COMPANIES

Lukasz FURMAN
State Higher Vocational School Stanisława Pigonia in Krosno, Poland
lukef@wp.pl

Witold FURMAN
Cracow University of Economics, Poland
witold.furman@uek.krakow.pl

Abstract
The article deals with the issue of tax information presented in the financial statements. The article presents various definitions of financial statements resulting from legal regulations and literature. In particular, the issues of tax depreciation of fixed assets used in business and deferred income tax were discussed. The next part of the article mentions other necessary tax elements of the financial statements, i.e. the indication of the tax year in force in the company, the method of income taxation and the method of tax advances paid.

Keywords: *financial report, additional information, corporate income tax*

1. INTRODUCTION

For companies, including companies that run a business, it is very important to properly prepare financial statements with all the elements provided for by law. The scope of this information is provided by: International Accounting Standards, the Accounting Act. An inseparable element is also tax information, which is related to the revenues calculated by the company. They must also be reflected in the final accounting product.

The purpose of this article is to indicate tax information that must be included in the financial statements in order to fulfill its information function well. During the analysis, the Act on Corporate Income Tax was used, indicating at the same time what information should be included in the report to meet the basic information needs of a wide range of recipients.

Lack of this information could prevent full understanding of the financial situation in the company.

The research method used in this article is the analysis of the subject literature and legal regulations. Although the article was not included in the empirical data, it was attempted to emphasize the full presentation of the scope of tax information, which should be included in the report.

2. THE CONCEPT OF FINANCIAL STATEMENTS AND THE IMPACT OF TAXES ON ITS FORMATION

According to the provisions of the Accounting Act (Article 45 (2)), the financial statements applicable in Poland include the balance sheet, profit and loss account, additional information including the introduction to the financial statements and additional information and explanations. The business units whose financial statements are subject to an annual audit also prepare a statement of changes in equity (fund), and in the case of investment funds – a statement of changes in net assets, and a cash flow statement.

In addition, the law indicates that the alternative investment company's financial report also includes a summary of additional information about the company including information on the

structure of assets and operating expenses, net asset values and information about the value of net assets on the right to participate and how it is determined, information about the company issued by an alternative investment company financial instruments or granted authorizations affecting the determination of the net asset value or rights of investors and information regarding the privileging of participation rights or restriction of rights arising therefrom.

In turn, International Accounting Standard No. 1 Presentation of Financial Statements (point 7) specifies that the financial statements constitute a structured presentation of the financial and financial performance of the entity. The purpose of general purpose financial statements is to provide information on the financial position, financial performance and cash flows of an entity that is useful to a wide range of users when making business decisions. In addition, the financial statements present the results of managing management of the resources entrusted to it. To achieve this goal, the financial statements provide information about: assets, liabilities, equity, revenues and expenses, including profits and losses, other changes in equity and cash flows.

In addition, it indicates that such information, together with other data included in the notes to the financial statements, helps users of financial statements in anticipating future cash flows of the entity, in particular their timing and degree of certainty. According to the definition – additional information included in IAS No. 1, it contains additional explanations to the data presented in the balance sheet, profit and loss account, statement of changes in equity and cash flow statement. In this respect, there are also tax information that characterizes the situation related to the company's fiscal burdens. The data contained are primarily descriptive. However, they are often backed by value data.

The problem of tax information in the financial statements was dealt with by many specialists in this field. In 1971–1973 The Trueblood Report was created (compare Belkaoui, 2004).

Subsequently, in 1975, Making Corporate Reports Valuable was published [http://www.icaew.com]. Then, in 1989, Solomons Report was made available on the information contained in the financial statements (Shahwan, 2008).

The discussion on the content of the financial statements, as can be seen from the reports, does not cease. Mainly boils down to the general financial reporting model. Works are being undertaken on how to change the accounting system in terms of disclosing new financial information, including tax information. The main debate concerns the principles of reporting Information on the financial situation of enterprises. In the international dimension, these issues were dealt with, among others: Scott D. Dyreng, Bradley P. Lindsey (compare Dyreng i inni, 2009), P. Lisovsky (compare Lisovsky, 2009), Gavin Cassar (compare Cassar, 2011), Francois Brochet, Alan D. Jagolinzer, Edward J Riedl (compare Brochet et al., 2013), K. Kelvin, F. Law, Lillian F. Mills (compare Kelvin i inni, 2015), Ray Ball, Xi Li, Lakshmanan Shivakumar (compare Ball and others 2015).

Among the representatives of the Polish accounting environment in the debate on the shape and content of financial statements spoke in the pages of their works: Irena Olchowicz and Agnieszka Tłaczała (compare Olchowicz and Tłaczała, 2002), Ewa Jakubczyk-Cały (compare Jakubczyk – entire, 2002), Ewa Walińska (compare Walińska, 2004), Waldemar Gos (compare Gos, 2013), Łukasz Furman (compare Furman, 2016, 2017), Jolanta Iwin-Garzyńska (compare Iwin-Garzyńska, 2017). Despite many publications on financial statements and their content as well as informational value, this topic is constantly evolving and there will be more and more new elements, e.g. tax ones, which will prove very important from the point of presentation.

3. THE SCOPE OF TAX INFORMATION IN THE FINANCIAL STATEMENTS OF COMPANIES

3.1 Tax depreciation and leasing

The Accounting Act in Poland requires companies (e.g. various types of companies) to include in their financial statements reliable and non-defective additional information that will contain important data and explanations. In particular, it should contain:

1) introduction to the financial statements, including a description of the adopted accounting principles (policy), including methods of valuation and preparation of financial statements to the extent the law leaves the entity the right to choose, and to present the causes and consequences of their possible changes compared to the previous year;
2) additional information and explanations:
   a) to the balance sheet, profit and loss account, statement of changes in equity (equity) and cash flow statement for the reporting periods covered by the financial statements,
   b) the proposed distribution of profit or loss coverage,
   c) basic information about the employees and bodies of the unit,
   d) other relevant information for the understanding of the financial statements.

Among the information that the legislator mentions must include tax information, which will primarily refer to income tax from business activity. With regard to companies that are corporate taxpayers, the financial statements must contain the necessary information that will indicate the correctness of tax settlements. Additional information to the financial statements should thoroughly discuss the principles of tax depreciation of fixed assets and intangible assets owned by the enterprise. Assigning appropriate property components to fixed assets and intangible assets should be guided by statutory definitions. As fixed assets should be considered property belonging to or owned by the taxpayer, acquired or manufactured on its own, complete and fit for use on the day of acceptance for use:

- buildings, buildings and premises being separate property,
- machinery, equipment and means of transport,
- other items

with an anticipated period of use longer than one year, used by the taxpayer for needs related to his business activity or put into use under a lease, tenancy or lease agreement and regardless of the anticipated period of use:

- investments in foreign fixed assets accepted for use,
- buildings and structures built on foreign land,
- assets, listed in the first part of the list of fixed assets (i.e. buildings, buildings, premises, machinery, equipment, etc.), not owned or jointly owned by the taxpayer, used by him for the needs of the business based on the lease agreement with the owner or co-owners of these components – if depreciation write-offs are made by the user,

On the other hand, intangible assets, in accordance with tax regulations, should be classified as eligible for commercial use on the day of their acceptance into use:

- cooperative ownership right to a dwelling,
- cooperative right to business premises,
- the right to a detached house in a housing association,
- Copyright or related property rights,
- licenses,
- the rights specified in the Act of 30 June 2000 – Industrial Property Law,
- a value representing the equivalent of obtained knowledge-related information in the field of industrial, commercial, scientific or organizational (know-how),

- an anticipated period of use longer than one year, used by the taxpayer for needs related to his business activity or commissioned for use under a license agreement (sublicense), lease, tenancy or lease agreement and regardless of the anticipated period of use:
- goodwill, if this value arose as a result of acquisition of the enterprise or its organized part by way of purchase or acceptance for payable use, and amortization write-offs are made by the user,
- costs of development work completed with a positive result that can be used for the taxpayer's business activities.

Fixed assets that were purchased by the company for business purposes and their value does not exceed PLN 10,000 can be depreciated at one time. The property component with an initial value not exceeding PLN 10,000 can also be entered in the list of fixed assets and intangible assets. In this case, its one-off depreciation is admissible in the month of putting it into use or in the following month. In addition, it is also possible to amortize it according to general principles, which provide for monthly amortization charges at a specific rate.

The financial statement should show the type of tax depreciation that the company uses. The taxpayer can choose a very wide range of depreciation methods, i.e.:

- linear method of depreciation of fixed assets, which assumes the consumption of a fixed asset throughout its entire useful life. Depreciation write-offs are determined according to the rate, which should not change throughout the depreciation period. All rates are included in Annex 1 of the Personal Income Tax Act and the Corporate Income Tax Act.
- an individual linear method of depreciation of fixed assets based on the determination of the depreciation rate by the taxpayer (individually), in case the purchased fixed assets are used or improved. In such situations, individual categories of fixed assets must have minimum depreciation periods. For groups of fixed assets classified in the Classification of Fixed Assets, i.e. group 3 – machines and boilers, group 5 – machines and general-purpose machines, group 5 – machines, specialized devices and apparatus, group 6 – technical devices, group 8 – tools, instruments, movables and equipment – depreciation time is:
  - 24 months – when the initial value is less than PLN 25,000,
  - 36 months – when the initial value is greater than 25,000 zlotys, but be less equal to 50.000 zł,
  - 60 months – in other cases.

  In turn for means of transport, the minimum amortization period is 30 months. Under individual depreciation, amortization rates can be increased accordingly. This applies to fixed assets that are used in a special way. For selected fixed assets, a specific ratio is applied, which is only multiplied by the depreciation rate of this fixed asset:

  1,2 – for buildings and structures used in degraded conditions,
  1.4 – for buildings and structures used in bad conditions,
  1.4 – for machines, devices and means of transport (except for sea fleet) used more intensively in relation to average conditions or requiring special technical efficiency,
  2.0 – for machines and devices included in the groups 4–6 and 8 KŚT subject to fast technical progress.
- degressive method – involving a change in the value of depreciation along with a change in the efficiency of the fixed asset, which decreases with the time of its use. The depreciation methods should be described in detail in the additional information with regard to which fixed asset they concern.

3.2 Temporary and permanent differences in the financial result and tax result

The description of the financial statements should contain elements that will explain permanent and temporary differences in the tax base. In principle, economic events should be indicated, which are not accepted by the tax law regulations as revenues and costs. The tax result should be determined

gradually, starting with the calculation of the balance sheet result. An exemplary sequence of activities is shown in table 1.

Table 1. Determining the tax result, starting from the gross financial result

No.	Item
1	Revenues resulting from accounting books
2.	Costs resulting from accounting books
3.	Gross financial result for 2xxx.
4.	Correction of the financial result by:
	a) revenues not constituting tax revenues
	b) costs not constituting tax deductible costs
	c) tax revenues – the value of free benefits not included in the accounting books
	d) tax costs recognized in previous years' books
5.	Tax income (+) / tax loss (-)

Source: own study

The emerging differences between the financial result and the tax result can be shown and analyzed in various dimensions. From the point of view of the types to which the differences relate, differences in revenues and costs are distinguished. In turn, considering the nature of differences, there are indications of permanent and temporary differences. Walińska also emphasizes that it is also important to indicate the differences resulting from the different recognition in the accounting and tax account sources of income and costs, as well as the difference in the moment of their recognition in both accounts (Walińska, 2004).

Enterprises in Poland, as part of the settlement of the financial result, most often show the following positive temporary differences: positive exchange rate differences, calculated at the balance sheet valuation of cash and foreign balances in foreign currencies,

- accrued but not yet received interest on trade receivables; they are reported on an accrual basis in books, while for tax purposes these interest are accepted as actually received in cash,
- accrued but not yet received interest on loans granted,
- accelerated depreciation – that is when the asset is depreciated using the effective depreciation rate for tax purposes rather than the balance sheet,
- costs of repairs and other expenses settled over time, which were included in the tax base at the time they were incurred.

In turn, among the negative temporary differences, economic units have:

- accrued but not yet paid interest on trade liabilities not paid on time,
- accrued negative foreign exchange differences arising in the balance sheet valuation of cash and foreign currency balances in foreign currencies,
- accrued remuneration for contracts of mandate and contracts for work not paid until the balance sheet date, remuneration for contracts of employment which have not been put at the disposal of employees on time,
- accrued but not yet paid interest on loans taken,
- depreciated depreciation – i.e. when the measure is depreciated using the effective lower depreciation rate for tax purposes than the balance sheet,
- write-offs for impairment of particular assets if it is possible to recognize them as tax costs in the future,

- balance sheet valuation of financial assets at a market value lower than their purchase price,
- creating a provision for certain or probable losses from operations in progress,
- creating provisions for warranty repairs, refunds, employee benefits (jubilee bonuses, retirement pension benefits, holiday provisions) in the amount of probable liabilities falling for the current period.

3.3 Deferred income tax

Economic units very often create a deferred income tax reserve. It applies to income tax, which will be required in the future to be paid through the occurrence of positive temporary differences, increasing both the tax base and the income tax itself. Deferred income tax is a potential income tax amount resulting from economic events of the current period, which will be paid by the taxpayer (or deducted from another payment) in the future together with the tax liability established for that period based on the tax law in force in the future reporting period. (Jakubczyk-Dziedz et al., 2002).

Deferred tax liability – is created as a result of positive temporary differences between the accounting and tax value of assets and liabilities or the value of income, which will in the future increase the tax base. It is the result of differences between the amount an enterprise should pay to the tax office in accordance with the accounting principles and the value to be paid in accordance with the tax law.

Provision for deferred income tax, takes its place in liabilities i.e. Liabilities and provisions for liability as the first point. Therefore, it is classified as the part of long-term liabilities whose exact maturity date and their amount are unknown and completely certain. However, it is possible to estimate their amount and inclusion in the balance sheet. The additional information should include a description referring to the created deferred income tax provision, which will explain in detail what economic event caused it.

3.4 Leasing of owned property

From the perspective of the financial statement being prepared, it is also necessary to properly present lease agreements that have concluded our company (company) for necessary assets used in the course of business. In the case when an entity has adopted foreign fixed assets for use under an agreement which provides that one party, i.e. the sponsor, gives to the other party, i.e. who uses fixed assets for paid use or also for the collection of benefits for a definite period, these assets are classified as fixed assets.

If it turns out that the lease in tax and accounting terms is a financial leasing contract, the financing provider generally reports for settlement the capital and interest part of the basic fee. In the case when the lease is a tax-based operating lease, and an accounting lease of finance, the subject of the leasing contract is subject to the user only balance-sheet depreciation. Taxes are tax-deductible for the tax revenue. At the leasing contract, the financing party issues a VAT invoice with one item – basic fee. By making a record of such an invoice, the user should divide the basic fee into a capital and interest part. Such a division is shown as:

- financial cost – interest part of the basic fee,
- commitment to the financing party (repayment) – the capital part of the basic fee.

All concluded contracts for the leasing of assets should be carefully described in the additional information, as they will help to better understand the financial and economic situation of the enterprise.

3.5 Other tax information included in the financial statements

Other tax information must also be included in the financial statements. The first basic information is primarily the period in which the tax year applies and whether it coincides with the calendar year. Companies preparing financial statements have the option to set the time of the tax year in any 12-month period. For companies starting their business, tax law permits even exceeding the 12-month period. For example, if the company starts operations on September 1 this year, the first

tax year may last until December 31 of the following year. Such information is particularly important for investors who are interested in investing in a given company.

The next necessary tax element of the financial statements is the indication of the form of taxation. For capital companies, there is currently a linear rate in Poland of 19% in 2018. For new companies, the legislator provided for 15% of income tax. Getting acquainted with the rules of taxation of income generated by the Company will allow to assess the amount of tax paid.

When mentioning the form of taxation, it is also impossible to forget about the form of paid income tax advances. In the case of corporation tax, which is paid by companies, you can choose between three options:

- monthly advances are paid from the first until the last but one month of the tax year by the 20th day of each month for the previous month,
- quarterly advances, which can be used by taxpayers starting their activity in the first tax year and small taxpayers (up to 1.2 million net sales). They have the right to take advantage of the possibility to make advance payments on a quarterly basis for the period from the first to the last but one quarter of the tax year. Advance payments should be paid by the 20th day of each month following the quarter for which an advance payment is made.

Additionally, information on whether the company is a taxpayer of indirect taxes should be included in the financial statements. The main point is to indicate the type of tax, e.g. tax on goods and services, excise duty. If the company pays local taxes, it is necessary to indicate which property components apply and the tax authorities collecting them. Such an approach to tax information will allow for an in-depth analysis of financial data. If the recipient of the information will analyze the profit and loss account and his interest will be focused on the costs related to taxes and fees, reading the information to which territorial self-governments are influenced by taxes on the enterprise will give a full picture of the situation.

If the company has a guarantee securing liabilities of customs debts, taxes and other charges in customs matters related to, among others with the procedure: admission to trading, customs warehouse, temporary storage of goods, inward processing, outward processing, processing under customs control and temporary admission should indicate in the tax information about this state of affairs. The lack of such data would certainly not show the full financial situation.

4. SUMMARY

The issue of tax information presented in the financial statement presented in a short outline allows one to get acquainted with the basics of tax charges paid by a given economic unit. Depriving this information of the financial statements would impoverish the information value of the financial statements. Lack of the tax aspect in individual parts of the financial statements, and in particular in tax information, may effectively disrupt its analysis. The information presented should be reliable and not flawless, so that one can easily get to know the actual picture of the tax situation in the business unit. It can also be noted that the analysis of tax information contained in the final accounting system document can contribute to tax planning in further business operations. The collected tax information in the report may allow to plan a plan related to tax optimization.

BIBLIOGRAPHY

Belkaoui A.R., *Accounting Theory,* 5th ed, Thomson, London 2004, Chapter VI.

Cassar G, Discussion of The Value of Financial Statement Verification in Debt Financing: Evidence from Private U.S. Firms, Journal of Accounting Research, Volume 49, Issue 2, May 2011, p. 507–528.

Gos W., 2005, *Sprawozdawczość i rewizja finansowa*, Instytut Audytu i Doradztwa, Warszawa.

Francois Brochet, Alan D. Jagolinzer, Edward J. Riedl, Mandatory IFRS Adoption and Financial Statement Comparability, Contemporary Accounting Research, Volume 30, Issue 4, Winter 2013, p. 1373–1400.

Furman Ł., *The Rules of Personal Income Tax in Poland vs. Accounting Systems of Companies*, Proceedings of the 4th international scientific conference: IFRS GLOBAL RULES & LOCAL USE, Anglo-American University, Prague, 2016, p. 157–163.

Furman Ł., Furman W., *Disciplinary Responsibility of Accounting Professions in Poland in the Years 2013–2016*, Proceedings of the 5th international scientific conference: IFRS GLOBAL RULES & LOCAL USE, Anglo-American University, Prague 2017, p. 222–229.

Jakubczyk-Cały E.(red.), 2002, *Podatek dochodowy odroczony w praktyce rachunkowości*, Difin, Warszawa.

Iwin-Garzyńska J., Znaczenie ksiąg rachunkowych w określaniu podstawy opodatkowania, Finanse, Rynki Finansowe, Ubezpieczenia 2017, nr 3 (87) cz. 2, Opodatkowanie przedsiębiorstw, p. 161–168.

Kelvin K. F. Law, Lillian F. Mills, Taxes and Financial Constraints: Evidence from Linguistic Cues, Journal of Accounting Research, Volume 53, Issue 4, September 2015, p. 777–819.

Lisowsky P. (2009) Inferring U.S. Tax Liability from Financial Statement Information. The Journal of the American Taxation Association: Spring 2009, Vol. 31, No. 1, p. 29–63.

Olchowicz I., Tłaczała A., 2002, *Sprawozdawczość finansowa*, Difin, Warszawa.

Ball R., Xi Li, Shivakumar L., Contractibility and transparency of financial statement information prepared under IFRS: Evidence from debt contracts around IFRS adoption, Journal of Accounting Research, 2015, Tom 53, p. 915–963.

Shahwan Y., Qualitative Characteristics of Financial Reporting: A Historical Perspective, „Journal of Applied Accounting Research" 12008, vol.9, p. 192–200.

Scott D. Dyreng, Bradley P. Lindsey, Using Financial Accounting Data to Examine the Effect of Foreign Operations Located in Tax Havens and Other Countries on U.S. Multinational Firms' Tax Rates, Journal of Accounting Research, Volume 47, Issue 5, December 2009, pp. 1283–1316.

Walińska E. (2004), Wartość bilansowa przedsiębiorstwa a alokacja podatku dochodowego, Wydawnictwo Uniwersytetu Łódzkiego, Łódź.

Accounting Standard Steering Committee, http://www. icaew.com

FINANCIAL RESULT IN THE LIGHT OF TAX AND ACCOUNTING REGULATIONS IN POLAND

Lukasz FURMAN, Kacper KANDEFER, Małgorzata LORENS
State Higher Vocational School Stanisława Pigonia in Krosno, Poland
lukef@wp.pl, kacperspace@gmail.com, m.lorens.98@wp.pl

Abstract
The article discusses the problems associated with the calculation of the financial result according to the rules of balance sheet law and tax law. The structure of the financial result operates in the Polish accounting system, which is calculated as the difference between income and balance sheet costs. In turn, the financial result of taxation includes in its calculation also revenues and costs, however, accepted by tax law. There are situations that cause the financial result in the balance sheet and tax terms to differ significantly. The analysis of differences with the description must be included in the notes to the financial statements. Then we can find out in detail what the differences result from. Most often, if revenues and expenses do not coincide, this results, for example, from the acceptance of revenues by tax law and, on the other hand, non-acceptance by tax law. This situation may also concern costs that will be recognized by the balance sheet law and will be eliminated by tax regulations. The situation of the financial result in terms of tax and balance sheet concerns taxpayers of personal income tax and income tax from legal persons. The condition for calculating the indicated financial results is the need to keep full accounting records.

Keywords: *financial result, tax law, accounting, companies*

1. INTRODUCTION

The financial result shows the financial result of the business activity of the company in a given reporting period. The result is given special attention because it is important from the point of view of balance and tax regulations. According to the first regulations, attention is paid to a reliable and faultless reflection of the financial result for shareholders, partners, etc. In the second case, the financial result is calculated and based on tax regulations and is to constitute the basis for determination of income tax. Thus, it can be noted that the financial result is determined in a variety of ways.

The purpose of this article is to present the principles that govern the calculation of the financial result based on the balance sheet regulations and tax regulations and the analysis of existing differences. In addition, the company's consequences for determining the balance sheet and tax results will be indicated. In the first case, the tax result (income or tax loss) is determined, while in the second case, the financial result (profit or loss). Both the financial result calculated based on the balance sheet provisions and tax regulations are of a reporting nature, which is connected with taking into account economic events that have already been implemented. The occurrence of differences between tax and balance sheet recognition of economic events for the purpose of determining the result leads to specific consequences. They mainly concern the organization of books and accounts as well as the informational value of the financial statements.

The research method used in this article is the analysis of the subject literature and legal regulations.

2. RESEARCH ON BALANCE SHEET AND TAX RESULTS

Many economists dealt with the difficult matters concerning differences between balance sheet financial results and tax results. In the international dimension, it is necessary to mention among others: Alan J. Auerbach (compare Auerbach, 1982), Gil B. Manzon, George A. Plesko (compare

Manzon, Plesko 2002). Business unit management uses accounting methods to increase expected tax savings. C. Brian Scott, Jamioe Pratt and Toby Stock note in their article that:

- tax consequences may affect accounting choices when there is mandated conformity of financial accounting to tax accounting metod,
- reduce record keeping costs result from using consistent methods,
- certain taxes based on the book values of assets may be reduced by adopting to financial accounting methods that result in lower asset book values (Scott, Pratt, Stock, 1996).

Research work in the area of the financial result according to the balance sheet principles and the financial result according to tax rules was visible in the works of R. Kager, D. Schanz, R. Niemann (Kager, Schanz, Niemann, 2011). Differences in both financial results increase the complexity of the records and costs associated with the process of determining the tax burden – tax compliance costs. (Schanz, Schanz, 2009, p. 9).

In Poland, with this issue dealt: L. Poniatowska and B. Gierusz. First of the authors in her publication formulated the definition of the financial (balance sheet) result, which is expressed in money as a result of the company's operations for a given period determined in accordance with the principles set out in the Accounting Act (Poniatowska, 2013). The second author has formulated the concept of financial result according to tax rules, which is the amount determined according to tax law, and the accounting procedure aims at correct calculation of the tax base and tax assessment (Gierusz, 2005).

In order to properly determine the financial results of operations, it is necessary to observe both balance and tax rules (Kotyla, 2014).

On the other hand, interesting research regarding the differences in the financial result from the tax base, as well as what determines the differences between the accounting and tax results in Polish enterprises, was conducted by A. Białek-Jaworska. The research concerned stock exchange companies.

In particular, attention was paid to the level of compliance of accounting books with tax books. The determinants of differences between the accounting and tax results in the one-off and bilateral system were also examined, including deferred income tax (Białek Jaworska, 2016). A similar problem in the research was taken by A. Leszczyłowska, who emphasized that discrepancies between accounting profit and tax base which are quite strong and can be observed especially in medium and large companies (Leszczyłowska, 2014, 2016).

3. REVENUES ACCORDING TO BALANCE SHEET LAW AND TAX LAW

Revenues, next to costs, are the basic category shaping the result of operations. According to art. 3 par. 1 point 30 of the Accounting Act through revenues is understood as the probable creation in the reporting period of economic benefits, with a reliably determined value, in the form of an increase in the value of assets, or a reduction in liabilities that will lead to an increase in equity or a reduction in its shortfall in a different way than making a contribution by shareholders or owners. Generally, revenues under the balance sheet law are received or due amounts from sales and other titles. Revenues are understood in accounting in accordance with the accrual principle, that is, they arise at the time of handing over to the contractor goods, products or other property components, i.e. at the time of performance, and not when the payment is accepted. The amount of revenues is determined according to the fair value of the payment received or due, including the amounts of trade discounts and wholesale discounts granted by the unit. The classification criteria for recognizing revenues in the balance sheet law were subordinated mainly to obtaining information on the profitability of particular areas of the business unit's operations. Revenues are recognized in the accounting books and in the financial statements according to the following breakdown:

- revenues from basic operating activity, i.e. revenues received or receivable from the sale of products and goods, including subsidies, discounts, rebates and other increases or decreases, excluding value added tax,
- revenues from other operating activities, i.e. revenues indirectly related to the operating activities of the entity, in particular revenues from the sale of fixed and intangible assets, write-off of obsolete or forgiven liabilities, reversal of provisions, revenues in the form of penalties, fines, damages received, donations received and subsidies, subsidies and subsidies for purposes other than the acquisition or production of fixed assets, fixed assets under construction or intangible assets,
- revenues from financial operations include in particular revenues from dividends and interests in profits, interest, disposal of financial assets, foreign exchange gains,
- extraordinary revenues, traditionally known as extraordinary gains, are positive financial consequences of unique, emerging events in a way that is difficult to predict beyond the operations of the unit

The tax law sets out independent rules for determining tax income. The implemented solution takes as a starting point the determination of income or tax loss without assuming the gross financial result resulting from the accounting books and financial statements. Income is determined based on tax costs and income. In economic practice, the list of different regulations regarding the determination of the accounting and tax results is significant. It consists of differences both in terms of revenues as well as in the understanding of balance sheet and tax costs. The principles of balance sheet law are not honoured by tax law.

Income, according to tax laws, is the surplus of the sum of revenues over the costs of obtaining them, achieved in the tax year. If the tax deductible costs exceed the sum of revenues, the difference is a loss (Article 7 of Act on corporate income tax and Article 9 of Act personal income tax). The provisions of tax bills oblige taxpayers to keep accounting records in accordance with separate regulations in a way that ensures determination of income (loss), tax base and tax due. On the other hand, accounting based on balance sheet rights creates information as the information system in order to ensure, above all, a reliable, clear and true picture for a correct assessment of the asset's financial position and profitability for many different users of this information, especially for the management of the entity, investors, contractors, banks and local authorities.

On the other hand, tax authorities are a special user of verified information coming from accounting, because they require different information about revenues and costs shaped according to tax law. Therefore, for this purpose, economic units within financial and external accounting, oriented at correct preparation of financial statements, are also required to keep records for tax purposes in the form of analytical records or additional off-balance-sheet records.

In addition to accounting income that overlaps with tax revenues, it is necessary to distinguish:

- revenues which are accounting revenue and are not tax revenues (taking into account the subject of taxation according to tax laws), on the other hand, revenues which are not tax revenues and are tax revenues in the given reporting period should be considered,
- some revenues, for financial reporting purposes and for tax purposes, are recognized at other times (in accrual accounting, and in cash basis taxes),
- in costs, in addition to the accounting costs that overlap with tax costs, the costs that are the accounting costs should be identified, and they are not tax costs, as well as costs which are tax costs, and are not accounted for in a given reporting period,
- some costs for financial reporting purposes and for tax purposes are recognized at other times.

The classification of revenues in tax law is different than in the balance sheet law. For tax purposes, it is necessary to distinguish between taxable and non-taxable revenues.

The issue of determining revenues according to tax law should be considered through the provisions of the Acts on income tax from legal and natural persons containing the codification of revenues. Income in accordance with the Income Tax Acts is, inter alia:

1. Money received, monetary values, including exchange rate differences,
2. The value of things or rights obtained free of charge or partly for consideration, as well as the value of other gratuitous or partly paid services (...),
3. The value of cancelled or barred liabilities, including loans (credits), (...),
4. Value of returned debts, including loans (credits), which were previously written as bad or written down and included in tax deductible costs,
5. In the case of a reduction or refund of tax on goods and services in accordance with the provisions on tax on goods and services and on excise duty – input tax on goods and services in the part in which it was previously included in the tax deductible costs,
6. The amount of tax on goods and services: not included in the initial value of fixed assets and intangible assets subject to depreciation, or concerning other things or rights that are not fixed assets or intangible assets, in the part in which the adjustment resulting in the increase of tax deducted in accordance with Art. 91 of the Value Added Tax Act,
7. Income earned in connection with the return or receipt of a loan (loan) if the loan (loan) was indexed with the exchange rate of the foreign currency, if:
   the lender (the lender) receives cash as a principal repayment in the amount higher than the amount of the loan (credit) – in the amount of the difference between the amount of returned capital and the amount of the loan (credit) granted, the borrower (the borrower) returns repayment of the loan (credit) as cash repayment of the principal in the amount lower than the amount of the loan received (loan) – the difference between the amount of the loan (loan) and the amount of returned capital.

Tax laws do not contain a strictly defined definition of revenues. They only mention the basic issues that constitute tax revenue. Tax revenues defined in tax laws determine revenues primarily in accordance with the cash rule. Due to this, they were defined as received money and monetary values. According to article 12 act of corporate income tax and art. 14 of act personal income tax, for revenues related to economic activity and special departments of agricultural production, achieved in the tax year, also receivable revenues are considered, even if they have not yet been actually received, after excluding the value of returned goods, discounts and discounts. Revenues related to business operations (production, trade or service) include not only revenues that are a direct result of this activity. The revenues from the sale of fixed assets, subject subsidies, contractual penalties and damages from contractors (with the exception of interest due) will indirectly be revenues from the conducted activity, revenues from the sale of securities, income from lease, lease and lease contracts, which should be accepted in the amount actually received, i.e. on the cash basis.

Among the revenues listed in art. 12 point 1–10 act on corporate income tax and art. 14 act om corporate income tax, the taxable income is, among others the value of things or rights obtained free of charge or partly for consideration, as well as the value of other gratuitous or partly paid services, except for the use of fixed assets within the budget sphere. Their value is determined on the basis of market prices used in trade in items or rights of the same type and genre. The value of things or rights that are partly payable constituting the taxpayer's income is the difference between the value of these things or rights, determined on the basis of market prices and the payment to the taxpayer. The value of free assets received, also in the donation of assets, subject to depreciation and cash received for these components, constitutes the revenue to be settled over time, parallel to depreciation write-offs, increasing other operating revenues. For tax purposes, two important aspects should be taken into account: accrued depreciation and tax-free income.

Balance sheet and tax depreciation are equal. If tax depreciation differs from balance sheet depreciation, then determining taxable income (as well as tax costs), the depreciation determined in accordance with the provisions of the Tax Act should be included. In addition, it should be remembered that depreciation of fixed assets, determined according to tax rules, on the part of their

value that corresponds to incurred expenses for the acquisition or creation of these funds on their own, deducted from the income tax base, or returned to the taxpayer in any form, is not at the expense of earning. Free benefits have not been defined in the income tax acts. The definition of the essence of gratuitous benefits can be found in the Supreme Administrative Court's ruling of 29.10.1999, which states that “free benefit should be understood as all legal events and economic events in the activities of legal persons whose effect is free (i.e. (not related to costs or other form of equivalent) contributing to the property of that person, having a specific financial dimension.” Unpaid benefit, such as various services rendered to the taxpayer, the right to use or use assets such as a car or premises. it is the income of the user.

A gratuitous benefit may also be due to the receipt of a non-interest-bearing loan, the income is the equivalent of interest that would have to be paid. The property assignment is also leaving in the capital company shares in profits (dividends). Revenue is the cost of raising capital (interest).

Differently, the recognition of unpaid benefits is treated in the balance sheet law. The values received free of charge are the equivalent of the received property or property rights. Such asset accumulation is an increase in assets, without an increase in liabilities or capital, which generates income. Therefore, for tax purposes, this type of income is recognized in off-balance sheet records.

Tax revenue is the value of cancelled or overdue liabilities, including loans (credits), as well as recovered receivables that were considered irrecoverable or written off, including receivables for which revaluation charges were made and which had previously been associated with costs recognized tax. If tax base has not been previously reduced, the amount of the returned claim is not a taxable income.

Receivables written off as irrecoverable are tax expense if two conditions are met:

- the receivable has been previously recorded as receivable due,
- non-recoverability of receivables has been documented in accordance with the tax requirements contained in art. 16 sec. 2 act on corporate income tax and art. 23 sec. 2 act on personal income tax.

Tax revenues also arise in connection with taking up shares (stock) in a capital company, in return for a non-cash contribution, in connection with their redemption or division of the company. The tax revenue is the nominal value of shares (stocks) in a capital company, or contributions in cooperatives covered in exchange for a non-cash contribution in a form other than an enterprise or an organized part.

According to art. 12 act on corporate income tax, the revenue from taking up the shares arises on:

- registration of a capital company, either
- entry into the register of the share capital increase of a capital company, or
- issuing the share document, if the acquisition of shares is related to the conditional increase of the share capital.

Income tax also arises on the day of sale of these shares. The surplus of revenues over the cost of obtaining it is taxed on general terms. For tax settlements, the date on which the income is due is considered to be the date of issue of the item, disposal of the property right or performance of the service or partial performance of the service, no later than:

- invoice issue, or
- settling the amount due.

If the parties to the commercial transaction determine that the service is being settled in the settlement periods, the date of the revenue is recognized as the last day of the settlement period specified in the contract or invoice, at least once a year. This provision also applies to the supply of electricity, heat and gas. In the case of revenues from business operations to which the above-mentioned principles do not apply, e.g. for commission contracts, the day of receipt of revenue is deemed to be the day received

4. COSTS IN TAX AND BALANCE SHEET LAW

The word cost has a very broad meaning in Polish. A proper understanding of this term is crucial for people dealing with accounting and tax law. It seems that such a basic category should be clearly defined, both for the purposes of accounting and tax law. This does not mean that it must be defined in the same way. The Polish tax system is based on the principle of independence of balance and tax law. Economic practice shows, however, that tax regulations, in terms of tax deductible costs, are not consistent or complete, and the analysis of specific legal conditions in the scope of tax costs, in isolation from the economic concept of cost, often leads to absurd claims. Cost is the intentional consumption of economic resources expressed in cash, in particular fixed assets and intangible assets (depreciation), materials and energy, external services, employees' working time expressed in their remuneration. In addition, some expenses that do not directly reflect consumption, such as some taxes and fees, are a cost element. The costs incurred in a given period relate to the operations of a business entity of a productive, commercial and service nature. The definition of costs is included in art. 3 par. 1 point 31 and says that the costs are the probable decreases in the economic period of economic benefits, with a reliably determined value, in the form of a decrease in the value of assets or an increase in the value of liabilities and provisions. With regard to costs, the accrual principle is applied, pursuant to which in the accounting books and financial result of an entity all revenues and related costs related to these revenues should be recognized for the given financial year, regardless of the date of their payment. The creation of the cost in accounting is therefore not combined with the moment of paying the cost, i.e. incurring the expense. Not every expense is associated with the creation of a cost, and at the same time not every cost causes an expense (e.g. depreciation or creation of a provision in the cost of costs). On the other hand, these costs, which involve spending, often do not coincide with the moment and volume with these expenses. Income and expenses are related to a given reporting period and therefore, the accounting records and financial statements determine revenues earned in a given period - by rejecting deferred income and the corresponding tax deductible costs for that period, which are activated in subsequent reporting periods. On the other hand, consumption-related items that are not yet liabilities or probable costs, the amount or the date of which the liability is created, are not included in costs, related to passive accrued expenses and provisions for future liabilities. These procedures are carried out in accounting in accordance with the principle of commensurability of costs and revenues. In accounting, costs are recognized according to different classification criteria, serving different decision-making needs. The basic division of costs, mainly for reporting purposes, is the separation of costs:

- basic operating activity,
- other operating activities,
- financial activity.

The costs of basic operating activities are incurred costs in connection with the implementation of production, commercial, service and other activities (direct costs).

Other operating costs are costs indirectly related to operating activities, which include in particular: costs of social operations, costs of obtaining revenue from the sale of fixed assets, fixed assets under construction and intangible assets, written off overdue, forgiven and irrecoverable receivables (except receivables financial), write-downs of assets, fines and fines paid, donations made.

Financial costs include in particular interest, costs of obtaining income from the sale of financial investments, and negative exchange rate differences.

According to the Acts on personal and legal persons income tax, the costs of obtaining revenues are costs incurred in order to achieve revenues, or maintaining and securing a source of revenues, with the exception of costs listed in art. 16 sec. 1 act on corporate income tax and Article 23 sec. 1 act on personal income tax, i.e. not considered as tax deductible. According to statutory regulations, the costs of obtaining revenues are all costs, except those stipulated in the Act, directly and indirectly related to obtaining income, i.e. costs related to the entirety of economic activity. From the 1st of January 2007, the scope of tax deductible costs was formally extended on costs indirectly

related to the revenues obtained, by introducing into the tax definition the cost of the wording that the costs for tax purposes are also the costs of maintaining or securing the source of income.

In terms of tax deductible costs, the Administrative Court also spoke out because it settled disputes between taxpayers and tax authorities. When ruling on tax matters, the Court stated in the verdict that:

> "In order for a certain expense to be considered as a tax-deductible cost, there must be a causal relationship between expenses and revenues of this type so that incurring expenditure could have an impact on the creation or increase of revenues",
> "The tax deductible costs are all reasonable and economically justified expenses related to the business activity that are aimed at achieving, securing and maintaining the source of revenues",
> "Costs incurred by the taxpayer should be assessed in terms of their purposefulness, and thus the pursuit of obtaining revenues, and not the necessity and the result they brought in the form of specific revenues. What determines what is intentional, needed in the conducted activity, is decided by the entity conducting this activity, and not by the tax authority."

The division of costs, directly and indirectly related to revenues, determines the moment of deductibility of costs for determining taxable income. This division cannot be equated with the division of costs in accounting into direct and indirect costs related to the production of products. The cost of manufacturing products does not automatically become a tax deductible cost, as the basic condition must be met for this purpose – finished goods must be sold. If there is no revenue, it cannot be included either for accounting purposes or for tax purposes, the cost of producing products. These costs are subject to activation, i.e. they form a balance sheet component until the products are sold. In practice, especially due to the specific nature of business operations and the range of costs incurred by them, there are problems with unambiguous qualification for tax purposes of costs directly and indirectly related to revenues, as this determines the moment of their deduction. The basic criterion for this division is the ability to assign a given cost to a specific income.

The cost directly related to the revenue is the cost of producing the products sold. The same catalogue also includes the value at the purchase price of goods sold, or the net book value of sold fixed assets or intangible assets. Costs indirectly connected with revenues are all other costs, which are not costs directly related to specific revenues, but they are connected with business activity.

The tax deductible costs incurred in the years preceding the tax year are deducted in the fiscal year in which the corresponding revenues were achieved, e.g. the cost of producing products that were generated in the previous year and were sold in the current tax year. The tax deductible expenses directly attributable to income incurred in the tax year are deductible in the fiscal year in which the corresponding revenues have been achieved. There is convergence during tax costs and revenues, e.g. in a given tax year, products were manufactured and sold. Costs of obtaining revenue, directly related to revenues, referring to the revenues of a given tax year, incurred after the end of the tax year until: preparing the financial statements, in accordance with separate regulations, but no later than until the deadline set for the submission of the statement, if the taxpayers are obliged to prepare such a report, or submitting a testimony, however, not later than by the deadline specified for submission of this statement, if taxpayers, in accordance with separate regulations, are not obliged to prepare financial statements are deductible in the tax year in which the corresponding revenues have been achieved, Tax deductible expenses, directly related to revenues, referring to revenues and incurred after the day referred to in point 3, are deductible in the tax year following the year for which the financial statements or statements are made.

Costs indirectly related to revenues do not remain due to their nature in direct relation to revenues, therefore it was assumed that they are deductible on the date they were incurred. The determination of the date of the cost was therefore extremely binding. For tax purposes, the date of the cost recognized in the accounting books was used. An exception to this rule was made for provisions and passive accruals.

However, if the costs indirectly related to revenues related to a period longer than a tax year, for example property insurance costs, these costs should be settled over time, spreading them into

individual tax years. If it was not possible to determine what part of the costs relates to a given tax year, then they should be settled in proportion to the length of the period they refer to. A specific problem, both in the balance sheet law and in tax law, are foreign exchange differences related to exchange rate changes. Pursuant to the provisions of tax bills, recognition of costs in foreign currencies and foreign exchange differences being items of tax costs, costs incurred in foreign currencies are converted into PLN at the average exchange rate announced by the National Bank of Poland on the last business day preceding the cost incurrence.

5. DETERMINING THE FINANCIAL RESULT

After the end of the reporting period, the accounting books are closed and the tax base is determined. The taxpayer has the right, based on Polish regulations, to make deductions, e.g. for:

- donations made for the purposes specified in art. 4 of the Act of 24 April 2003 on Public Benefit and Volunteer Work,
- donations for religious purposes.

In addition, corporate income taxpayers and natural persons taxpayers, in case of income from a business activity in a given tax year, have the right to reduce it for tax losses if they have suffered in previous tax years. The legislator determined that one-off can be deducted no more than 50% of the amount of one tax loss and that one loss cannot be settled for more than 5 tax years.

In practice, when deducting tax losses from income, taxpayers should remember that:

- the loss from a given year may be settled with income from the next five tax years, not calendar years,
- the taxpayer decides himself in which years and in what amount the deductions will be made, provided that the amount deducted by him does not account for more than 50% of one tax loss and that one loss will not be settled for more than 5 years,
- you can deduct tax loss already during the next tax year (and not only in the final annual tax return), when calculating income tax advances, starting from any month of the tax year – and in this respect, the CIT taxpayer does not have to use proportional accounting (i.e. no the obligation to divide the amount of the tax loss into 12 months and to settle 1/12 of the loss for each month).

The emerging accounting and tax differences of the so-called book-tax differences are diverse in different countries. In Polish legal system these differences are numerous. Both the accounting and tax measures of income differ from each other. In practice, there may be a situation in which taxable income will occur and a loss will occur in the tax account. The problem raised will be visible in larger enterprises, which obligatorily keep accounting in two perspectives, ie financial reporting purposes and tax purposes.

6. SUMMARY

The occurrence of differences between the financial result and the tax result is inevitable, because it takes into account the different purposes of the balance sheet and tax law, as well as the applied principles of determining the results of operations. The financial result, which was determined according to the Accounting Act, is a reliable measure of the effects of the business entity's activity in a given period. On the other hand, a positive financial result is a source of tax and confirms the occurrence of tax capacity. When we take into account the tax result, it is determined in order to calculate the amount of income tax.

The analysis of the differences between the accounting and taxation of economic events leads to the conclusion that the rules for determining the financial result should be unified. As a result of this operation, first of all, economic entities that would limit the kept accounting records to the necessary minimum would gain. This would result in less laboriousness and reduced accounting costs. Certainly, economic activity would be more effective.

BIBLIOGRAPHY

Auerbach Alan J., (1982), *Taxation, Corporate Financial Policy and the Cost of Capital,*NBER Working Paper No. 1026, Issued in November 1982, NBER Program(s): Public Economics.

Białek-Jaworska A. (2016), *Book-tax conformity in Polish private companies*, "Zeszyty Teoretyczne Rachunkowości", 90 (146), p. 65–86.

Górowski I. (2007). *Istotność aktywów i pasywów z tytułu odroczonego podatku dochodowego w bilansach spółek giełdowych*, "Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie", 752, p. 95–109.

Kager R., Schanz D., Niemann R. (2011), *Estimation of Tax Values Based on IFRS Information: An Analysis of German DAX30 and Austrian ATX Listed Companies*, "Accounting in Europe", 8 (1), p. 89–123.

Kotyla C. (2014), *Ujmowanie podatkowych skutków zdarzeń w rachunkowości*, "Zeszyty Teoretyczne Rachunkowości", 79 (135), p. 45−56.

Leszczyłowska A. (2014), *The relationship between book profit and taxable income from a research perspective – evidence based on corporations in Poland,* "Journal of Economics and Management", 18, p. 91–105.

Leszczyłowska A. (2016a), *Provisions for Future Liabilities and Effective Corporate Income Tax Rate*, "Gospodarka Narodowa", 3 (283), p. 57–72.

Poniatowska L. (2013), *Pomiar i prezentacja wyniku finansowego w sprawozdaniu finansowym*, [w:] *Sprawozdawczość i rewizja finansowa. Problemy kwantyfikacji wartości*, red. B. Micherda i M. Andrzejewski, Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie, Kraków, p. 182–192.

C. Bryan Cloyd, Jamie Pratt and Toby Stock, *The Use of Financial Accounting Choice to Support Aggressive Tax Positions: Public and Private Firms*, *Journal of Accounting Research,* Vol. 34, No. 1 (Spring, 1996), p. 23–43.

Schanz D., Schanz S. (2009), *Zur Unmaßgeblichkeit der Maßgeblichkeit: Divergieren oder konvergieren Handels – und Steuerbilanz?*, Arqus-Diskussionsbeiträge zur quantitativen Steuerlehre, 78.

GOODWILL – AN ACCOUNTING CONUNDRUM

David John MUIR
Anglo-American University, Prague, Czech Republic
david.muir@aauni.edu

Abstract
Goodwill is often thought of as an abstract concept such as the "reputation of a firm", and often goes unnoticed in analysis of a company's finances. This single factor can be much more significant than many realize. Goodwill is not abstract but has a definitive monetary value which, as an investment, can be ascertained to the penny. It is the result of an acquisition which resulted in an excess in cost of acquisition above the re-valued assets minus liabilities. Since its inception in the late nineteenth century, it has been debated. But M&A activity has been on the increase in recent years, and it may soon be impossible to ignore the impact goodwill may have both on the asset side of the balance sheet and the shareholder's equity. This paper argues that in the end, amortizing the goodwill to cycle it off the balance sheet, while not perfect, is probably better than keeping it on the balance sheet awaiting impairment. The question is therefore: Should goodwill be amortized, and how consistent ids this with current accounting practices?

Keywords: *Goodwill, Matching Principle, Historic Cost, Acquisitions*

1. INTRODUCTION

This paper attempts to address on a systemic (as opposed to statistical) level the issue of goodwill, and how the changing environment in the investment field with M&A's becoming popular has shifted the focus to investor's ability to value potential investments. The Tyco scandal of the early 2000's, for example, stands out as an example of how valuation in acquisition and subsequent determination of shareholder value can manipulated. Acquisitions of AMP and US Surgical are of particular note. These resulted in speculation wherein a hedge funds manager shorted the stock while at the same time encouraging columnists such as Floyd Norris of the New York Times to blow the whistle on accounting irregularities. The motivation of this paper is to try and find a more stable solution

Goodwill has been a contentious point in accounting since its inception. One critic referred to it as a "politely mendacious courtesy which accountancy pays to the financial markets" and "amiable fictions (which) populate financial economics" (Topporowski, 2010). Differing views have been shared amongst those in the accounting fraternity – some suggest a double accounting solution which will include a Market Capitalization Statement showing assets and shareholder's equity at fair market value. This would be off-balance sheet. (Bloom, 2009). The question that has plagued accounting throughout is frequently revived in various guises – which is better? – Fair Value Accounting or Book Value Accounting? (Greenberg et al, 2013). The current practice of using impairment of goodwill as a means of writing it down is also looked at considering possible over-payment in acquisition of another entity. It appears that such write-downs are quite rare. (Feng, 2011).

Textbooks normally describe goodwill as follows "When an entire business is purchased, goodwill is the excess of cost over the fair value of the net assets(assets less liabilities) acquired." (Kimmel et al, 2011). This invokes basic accounting concepts – Historical Cost and, Matching Principle notably. A number of additional issues tend to ensue, and they shall be discussed further.

IFRS rules cover acquisitions in IFRS 3 – Business Combinations, which according its own sources:

- recognizes and measures in its financial statements the assets and liabilities acquired, and any interest in the acquire held by other parties;
- recognizes and measures the goodwill acquired in the business combination or a gain from a bargain purchase; and

- determines what information to disclose to enable users of the financial statements to evaluate the nature and financial effects of the business combination. (IFRS website)

In the IFRS Guidebook, 2018 edition, the following is added:

> "Many tax jurisdictions do not allow the recognition of any reduction in goodwill as a tax-deductible expense. Even though such reductions will reduce accounting profits." (Bragg, 2017)

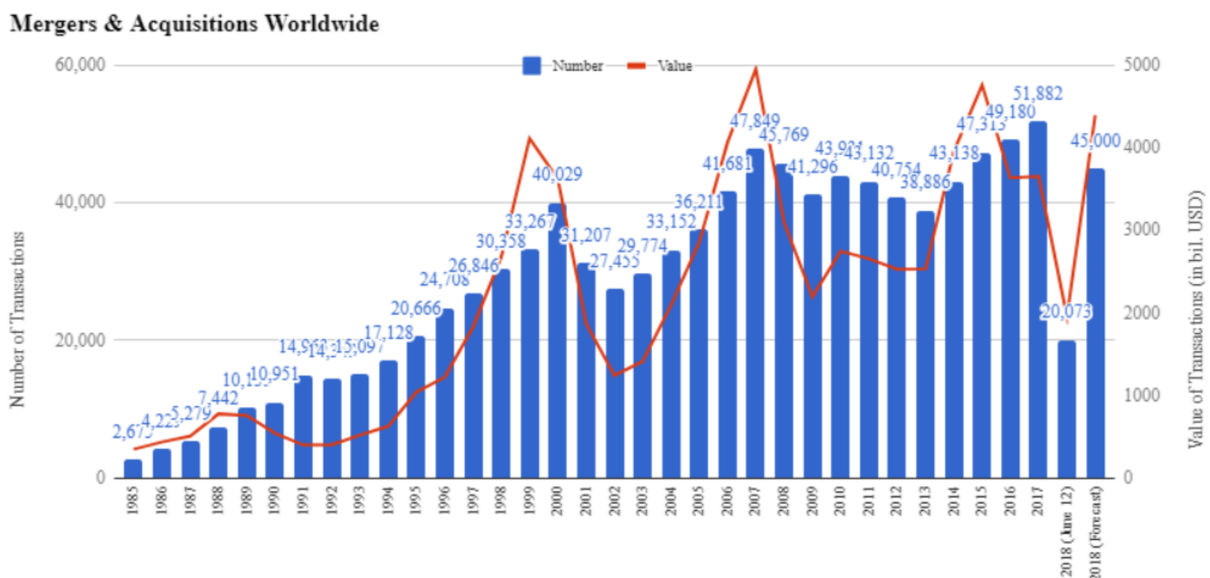
This paper will continue to show some of the pitfalls of this policy and attempt to suggest a possible remedy.

2. ACQUISITIONS AND MERGERS

There are several accounting concepts which are applicable in the event of a business entity buying out another. But perhaps we should look at reasons why acquisitions and mergers take place first. Each transaction has its own *raison d'être,* however, the reasons can be grouped into broad categories (DePamphilis, 2015):

1. Diversification
2. Synergy – vertical and horizontal integration
3. Strategic realignment
4. Tax considerations – "reversals"
5. Market Power

The level of activity has increased significantly in the past two decades, as the rationale for this activity has shifted toward more sophistication, there are now services by lawyers and accountants which specialize in this activity. The chart below indicates the extent of growth:



Source: International Mergers and Acquisitions Association

In 2017, there were 51,882 merger and acquisition transactions worldwide worth about 3.5 trillion US dollars. North America accounted for about 18,000 of these transactions, which were worth about 1.8 trillion US dollars.(IMAA website). It should be evident that as these transactions become more frequent, goodwill will represent a greater portion of corporate assets. An example of a transaction which will likely create a lot of goodwill is the recent purchase of Sky News by Comcast in a bidding war/auction with Fox and Disney. The final price was about 30 billion US dollars and is one of the biggest deals of its type.

A characteristic of goodwill is that it is an asset which cannot be sold, and therefore only has value as part of the larger corporate entity at time of sale. As these assets continue to accumulate,

they sit on the asset side of the balance sheet mostly unimpaired. A study showed that the median write-down due to impairment from 2004 to 2008 averaged 7.8% (Feng, 2011). This means that there are losses which are measurable – presumably due to the impairment testing which is done as part of the annual audit.

3. ACCOUNTING THEORY AND MERGERS AND ACQUISITION

A merger or acquisition requires integration of accounting records for the parties to the transaction. Assets and liabilities are evaluated to determine fair market value. Fixed assets are deemed to be newly acquired, and thus are shown on the books at full fair market value, and the depreciation process re-commences. This means that the acquirer enjoys the full benefit of new ownership of depreciable assets.

A significant part of the process is that accounting concepts and theory must be respected throughout. But some critics claim that this is not altogether true. The total acquisition, according to the concept of Historical Cost, must be booked for the total price of acquisition. The price is known to all, and the total cost of acquisition is applied as per the structure of the arrangements (loans, shares issued, possibly bond issues, etc). We will not deal with the minutiae at this point, but only say that the historical cost principle is respected, and that the difference between the fair value of the assets, and the fair value of liabilities will become the goodwill, which is basically a sum to make up the difference.

Two other important concepts, less respected, are the Matching Principle and the Revenue Recognition Principle. This is not evident to start with, but it warrants a closer look. The Matching Principle is a pivotal concept by which profitability is determined. In this case, the newly merged entity is receiving revenues from both entities, and part of the cost to be able to receive those revenues is the full price paid for the acquired entity. Part of that cost is resident in the goodwill. In the case of fixed assets, as already noted, the merged entity enjoys full benefit of depreciation deductions for the fixed assets. But in the case of goodwill, such as benefit is not allowable, which is contrary to the Matching Principle which is premised on the notion that revenues are matched with costs incurred to realize them. This has been a sticking point in literature for some time, as noted above. A company which uses acquisition as a strategic tool can accumulate significant sums of assets as goodwill. These, as previously noted, cannot be sold, and therefore also cannot be used to acquire loans by using goodwill as collateral, or possibly liquidating goodwill as an asset to raise funds. If the enterprise is in trouble, it will not be able to fall back on its goodwill to help bail it out.

In total, a case can be made that the current practice of not amortizing goodwill is consistent with other accounting practices because intangible assets are difficult to value. The fact is that at the time of acquisition, it is difficult to say, given the reason for the acquisition, if the price for the entity acquired was too high, which would make impairment a valid course of action. It is the rare CEO who would accept acquiring an entity after a hard-fought battle, then turn around and admit that he paid too much for the entity. Further, as the entities merge more closely, it becomes a more abstract exercise to determine how much the goodwill booked at the time of acquisition is really worth.

4. AN OVERVIEW OF THE PROBLEM

The issue of goodwill does not seem to have been taken seriously, and the accumulation of goodwill on balance sheets has become evident. Below is a table of the thirty largest companies by market capitalization ion the New York Stock Exchange. The table shows the values in millions and is taken for the most recent year-end financial data. The goodwill is compared to the shareholder's equity. Note that the average for this group, with a collective market capitalization in excess of ten trillion dollars, is 51.18%. This means that the net tangible worth of the shareholder's equity on average is reduced by more than half if goodwill is not counted as a part of the tangible worth of the company.

We should take the time to consider the true worth of this information. Goodwill is not a transmissible or saleable asset, and therefore is of limited value to the shareholder, and is further frequently deducted from the assets by financial analysts, along with intangible assets, which also may be of questionable value – this being for discussion in another paper.

Table of Goodwill vs Shareholder's Equity for most recent FY

In Millions

	Company	Goodwill	Sh. Equity	% of Eq
1	AAPL	5,717	134,047	4.26%
2	GOOG	16,747	152,502	10.98%
3	MSFT	35,683	82,718	43.14%
4	AMZN	13,350	27,709	48.18%
5	FB	18,221	74,347	24.51%
6	BRK	79,765	348,296	22.90%
7	BABA	162,149	365,822	44.32%
8	JNJ	31,906	60,160	53.04%
9	JPM	47,507	229,625	20.69%
10	XOM		187,688	0.00%
11	BOA	32,230	134,369	23.99%
12	WMT	18,242	77,869	23.43%
13	WFC	26,587	183,269	14.51%
14	RDS	13,662	194,356	7.03%
15	V	15,110	27,234	55.48%
16	PG	45,175	51,326	88.02%
17	BUD	136,533	71,336	191.39%
18	T	105,449	140,861	74.86%
19	CVS	38,451	37,691	102.02%
20	UNH	54,556	47,776	114.19%
21	PFE	55,952	71,287	78.49%
22	RHHBY	10,077	26,441	38.11%
23	CHL	35,343	85,636	41.27%
24	HD	2,275	1,454	156.46%
25	INTC	24,389	69,019	35.34%
26	TSM	182	48,271	0.38%
27	VZ	29,172	43,096	67.69%
28	ORCL	43,755	45,726	95.69%
29	C	22,256	181,487	12.26%
30	NVS	31,750	74,168	42.81%
		AVERAGE		**51.18%**

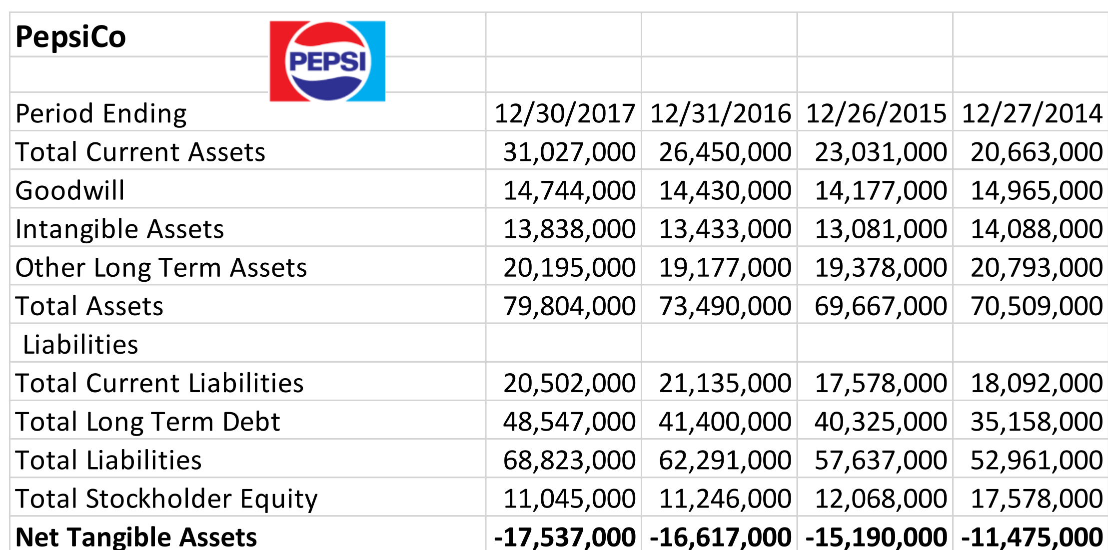
5. SOME EXAMPLES OF GOODWILL GONE AMOK

The discussion of goodwill is mostly an abstract exercise requiring a few examples to illustrate how serious the matter could potentially become.

Coca-Cola Company				
Period Ending	12/31/2017	12/31/2016	12/31/2015	12/31/2014
Total Current Assets	36,545,000	34,010,000	33,395,000	32,986,000
Intangible Assets	7,235,000	10,499,000	12,843,000	14,272,000
Goodwill	9,401,000	10,629,000	11,289,000	12,100,000
Other Long Term Assets	35,046,000	32,458,000	32,829,000	32,984,000
Total Assets	87,896,000	87,270,000	89,996,000	92,023,000
Liabilities				
Total Current Liabilities	27,194,000	26,532,000	26,929,000	32,374,000
Total Long Term Liabilites	43,630,000	37,676,000	37,513,000	29,329,000
Total Liabilities	68,919,000	64,050,000	64,232,000	61,462,000
Total Stockholder Equity	17,072,000	23,062,000	25,554,000	30,320,000
Net Tangible Assets	**436,000**	**1,934,000**	**1,422,000**	**3,948,000**

This is a summary of the Coca-Cola Company, considered by many to be the most valuable brand in the world. Yet, with almost 88 Billion US dollars in assets, it has 69 Billion in debt, and if we remove intangibles, the net tangible worth is 436 million. Note that goodwill is declining, however with more than 9 billion in Goodwill, it is still worth half the shareholders' equity.

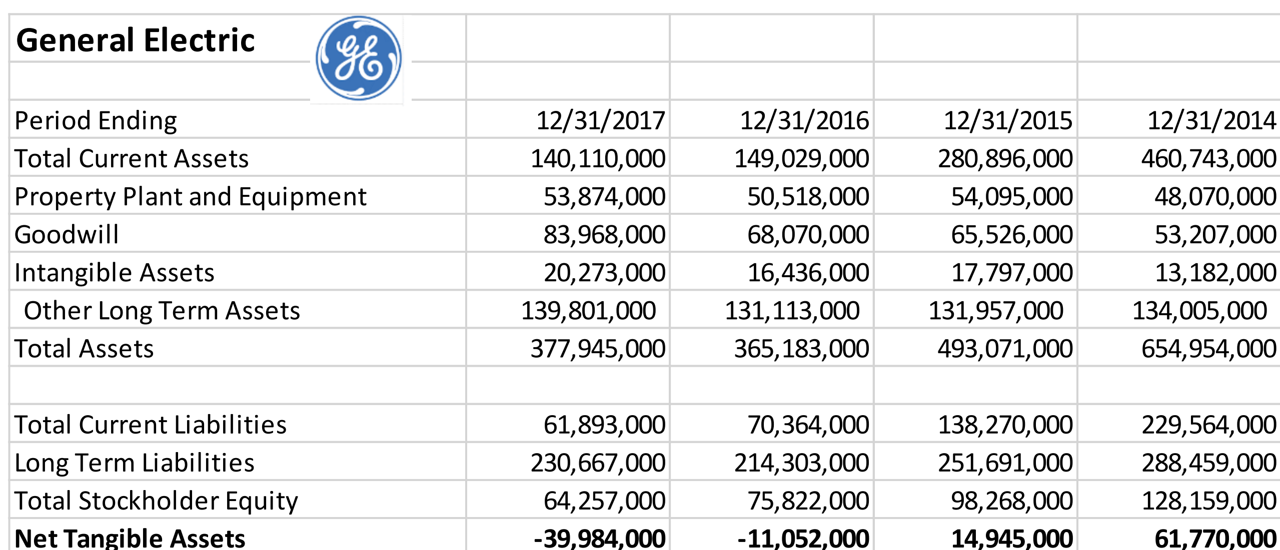
The next company is the closest competitor of Coca-Cola – Pepsi. The results are even more striking.



PepsiCo				
Period Ending	12/30/2017	12/31/2016	12/26/2015	12/27/2014
Total Current Assets	31,027,000	26,450,000	23,031,000	20,663,000
Goodwill	14,744,000	14,430,000	14,177,000	14,965,000
Intangible Assets	13,838,000	13,433,000	13,081,000	14,088,000
Other Long Term Assets	20,195,000	19,177,000	19,378,000	20,793,000
Total Assets	79,804,000	73,490,000	69,667,000	70,509,000
Liabilities				
Total Current Liabilities	20,502,000	21,135,000	17,578,000	18,092,000
Total Long Term Debt	48,547,000	41,400,000	40,325,000	35,158,000
Total Liabilities	68,823,000	62,291,000	57,637,000	52,961,000
Total Stockholder Equity	11,045,000	11,246,000	12,068,000	17,578,000
Net Tangible Assets	**-17,537,000**	**-16,617,000**	**-15,190,000**	**-11,475,000**

In the case of Pepsi, we can see that goodwill exceeds the worth of the shareholder's equity, which is diminishing year by year. Pepsi has, in effect, a situation that is deteriorating on terms of net tangible worth. This is not a situation that bodes well for the solvency of the company if the trend continues.

Both companies have a history of acquiring other firms and making them part of their brand repertoire. In the case of Pepsi, the acquisition of crisp manufacturers and sports drinks greatly expanded the market presence, however it appears that this was at a cost. Coke originally was advised by Warren Buffet to stay in fizzy drinks, which is when it was overtaken by Pepsi in terms of market capitalization. Coke regained its position after it merged bottling with franchising operations. This is one of the reasons goodwill is so evident today.



General Electric				
Period Ending	12/31/2017	12/31/2016	12/31/2015	12/31/2014
Total Current Assets	140,110,000	149,029,000	280,896,000	460,743,000
Property Plant and Equipment	53,874,000	50,518,000	54,095,000	48,070,000
Goodwill	83,968,000	68,070,000	65,526,000	53,207,000
Intangible Assets	20,273,000	16,436,000	17,797,000	13,182,000
Other Long Term Assets	139,801,000	131,113,000	131,957,000	134,005,000
Total Assets	377,945,000	365,183,000	493,071,000	654,954,000
Total Current Liabilities	61,893,000	70,364,000	138,270,000	229,564,000
Long Term Liabilities	230,667,000	214,303,000	251,691,000	288,459,000
Total Stockholder Equity	64,257,000	75,822,000	98,268,000	128,159,000
Net Tangible Assets	**-39,984,000**	**-11,052,000**	**14,945,000**	**61,770,000**

A recent case of problems with goodwill is General Electric. In the 1990's, GE, a company founded by Thomas Edison, was the largest company on the New York Stock Exchange. GE was present in every market imaginable – media, banking, locomotives, jet engines, appliances, and the list goes on. This was done through acquisition, so we see goodwill build up. The chairman changed and so did the vision. Divestment took place notably in media and banking, and resources were focused on a much down-sized firm concentrating on energy, however, these investments were not successful and in the past month a write-down of 23 billion dollars was announced along with the resignation of the chairman. The interesting thing about the figures is that as the goodwill grew, shareholder's equity fell, and net tangible assets fell twice as fast.

These three cases are only an illustration of how the use of goodwill can be problematic. If amortization of the goodwill had taken place, the stockholders might have been a bit less willing to tacitly allow the aggressive series of takeovers which today may be a challenge for the future for Pepsi, and possibly even Coke. Further, amortization in the case of GE might have softened the $23billion write-down.

6. CONCLUSION

This is not a new issue. It was the subject of a presentation at this forum a few years back. Previous authors have made suggestions which include, as this one does, a recommendation to amortize. This research updates the data, and adds the extent of the problem in terms of shareholder's equity. Mergers and acquisitions continue and represent an even greater part of corporate wealth.

While goodwill does represent investment based on Historical Cost, it is time we consider how to ventilate the expense of acquisition in much the same way we would, say, an apartment block or a factory. If we accept that acquisitions and mergers are legitimate means of investing, we must find a way to cycle the cost off the balance sheet as the entities proceed to merge through amortization. This is fair to the shareholders, the management and potential investors.

BIBLIOGRAPHY

Bloom, Martin (2009) *Double Accounting for Goodwill: A Problem Redefined*. Routledge.

Bragg, Stephen *IFRS Guidebook, 2018 edition*, Accounting Tools Inc, 2017.

DePamphilis, Donald M. *Mergers, Acquisitions and Other Restructuring Activities*, 8th edition, Academic Press, 2015.

Feng Gu and Baruch Lev, *Overpriced Shares, Ill-Advised Acquisitions, and Goodwill Impairment*, The Accounting Review, Vol. 86, No. 6 (NOVEMBER 2011), pp. 1995–2022.

Greenberg, Michael D.; Helland, Eric;Clancy, Noreen and Dertouzos, James N., *Fair Value Accounting, Historical Cost Accounting, and Systemic Risk*, Rand, 2011.

Kimmel, Paul D.; Weygandt, Jerry J.; Keiso, Donald E. *Accounting for Decision Making 4th ed*, Wiley, 2011.

Topporowski, J. *The Inflation of Goodwill*. in *Why the World Economy Needs a Financial Crash and Other Critical Essays on Finance and Financial Economics* (pp. 35–38). Anthem Press, 2010.

https://www.ifrs.org/issued-standards/list-of-standards/ifrs-3-business-combinations/

https://imaa-institute.org/mergers-and-acquisitions-statistics

INTERNATIONAL STANDARDS ON AUDITING – RISK-BASED AUDIT – DIRECTIONS OF CHANGE IN POLAND

Ewa GRABOWSKA-KACZMARCZYK, Iwona MAZUR-MAŚLANKA
Cracow University of Economics, Poland
grabowse@uek.krakow.pl, maslanki@uek.krakow.pl

Abstract
The development of the global economy requires that the existing regulations and solutions in the field of financial audit be adapted to the needs and expectations of the changing market. Relevant and effective solutions should take into account both auditor activities and the procedures in place in audit firms. To this end, Poland and other EU member states have implemented International Standards on Auditing which are to ensure an appropriate level of quality of services provided by auditors and audit firms. Standardisation of regulations and introduction of mandatory trans-border solutions facilitates comparison of the quality and results of the auditors work and their monitoring.
The paper aims to present the concept of IASs regarding risk-based audit of financial statements, thus ensuring high quality of the entire process. The paper relies on analysis of legal regulations, both national and international, literature in the field of financial audit, comparisons, and the methods of deduction and synthesis to draw conclusions.

Key words: *International Standards on Auditing, risk, financial audit*

JEL Classification: M41, M42, M49

1. INTRODUCTION

The 2008 financial crisis revealed various shortcomings of the functioning of the financial audit system in EU member states. Unfortunately, it turned out that the provisions of Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual financial statements and consolidated financial statements failed to sufficiently strengthen the audit system in Poland and across the European Union[1].

It became necessary to start a public consultation on the quality of financial statement auditing. On 13 October 2010, the European Commission issued a Green Book entitled "Policy on auditing financial statements: Lessons learned from the crisis". It concerned topics such as: the role of a statutory auditor, including communication of statutory auditors with stakeholders, management of audit firms and their independence as well as the quality of financial statement audits[2]. The above consultations had a significant impact on the reform of regulations related to financial audit. The changes were introduced by the Directive of the European Parliament and of the Council 2014/56/EU of 16 April 2014 amending Directive 2006/43/EC on statutory audits of annual financial statements and consolidated financial statements as well as Regulation of the European Parliament and of the Council (EU) No. 537/2014of 16 April 2014 on detailed requirements regarding statutory audits of financial statements, public interest entities, repealing Commission Decision 2005/909/EC.

On the basis of Directive 2014/56/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2006/43/EC on statutory audits of annual accounts and consolidated accounts and Regulation (EU) No 537/2014 of the European Parliament and of the Council, Member States were obliged to implement the International Standards on Auditing. The process of adapting national regulations to European requirements has been carried out separately by and at various rates

[1] This issue was addressed, among others, in papers of: (Andrzejewski, 2014; Pfaff, 2016; Kogut, 2017).
[2] The subject of quality of audit of financial statements was presented, e.g. in (Andrzejewski, Maślanka, 2015; Andrzejewski, Maślanka, Mazur-Maślanka, 2016).

in individual EU countries. Most Member States have voluntarily adopted the ISA as national auditing standards.

In the preamble of Directive 2014/56/EU, attention was drawn to the fact that the main onus for providing financial information is on the management of the audited entities. The role of auditors and audit firms involves actively questioning management information from the user's perspective. Thus it is important to promote professional scepticism (an auditor's attitude characterised by curiosity, sensitivity to conditions that may indicate a possible distortion caused by error or fraud and questioning approaches in assessing audit evidence in the course of auditing financial statements).

The preamble highlighted a very important issue involving increase in independence as one of the basic elements during the conduct of statutory audits. Auditors, audit firms and their employees should, in particular, refrain from carrying out a statutory audit of an entity if they have an economic or financial interest in it, as well as trading in financial instruments issued, guaranteed or otherwise supported by the auditee, with the exception of shares in diversified collective investment schemes.

Another very important issue emphasised in the preamble of Directive 2014/56/EU was the provision of high quality statutory audits in the European Union. Point 12 reads that all statutory audits should be conducted on the basis of International Standards on Auditing as adopted by the European Commission.

An in-depth analysis of Directive 2014/56/EU is presented in a paper by Andrzejewski (2014).

This paper aims to present ISA adoption in Poland and the concept of ISA for risk-based audit of financial statements, thus ensuring high quality of the entire audit process. The paper relies on analysis of legal regulations, both national and international, literature in the field of financial audit, comparisons, and the methods of deduction and synthesis to draw conclusions.

2. INTERNATIONAL STANDARDS ON AUDITING IN POLAND

Due to the need to adapt national regulations to the requirements of Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts, on 7 May 2009 the Polish Parliament passed the Act on chartered auditors and their self-government, entities authorised to audit financial statements and public supervision. The Act entered into force on 6 June 2009. Under the above Act, pursuant to its art. 63, the Audit Oversight Commission was established[3].

The Audit Oversight Commission is a public administrative body operating under the public oversight system from 2 July 2009. The newly-established Audit Oversight Commission has a much broader scope of powers and control tools than those previously commanded by the Minister of Finance. As a consequence of adapting national regulations to the regulations in force in the European Union, the second half of 2009 saw a changeover of the rules and procedures for conducting audit.

As a consequence of the ongoing work on harmonization and clarification of legal regulations in Poland, on 11 May 2017 a new Act on statutory auditors, auditing companies and public supervision was adopted.

On-going work on new solutions indicates the legislator’s concern for and commitment to the process of improving the quality of auditor services, transparency and autonomy of operation. Adapting auditing practice to the provisions of the Act required time and technical solutions. The need to adapt national regulations to international solutions involved not only an approval of the direction in which other European countries are heading, but also an opportunity to show the transparency of operations of the auditors self-government in Poland.

ISAs were adopted for application in Poland on the strength of Resolution No. 2783/52/2015 of the National Council of Statutory Auditors of 10 February 2015 on domestic financial auditing

[3] Analysing the on-going change in his paper, M. Andrzejewski highlights the positive aspects of the quality assurance system and points out the outstanding preparedness surrounding the completion of tasks arsing from 2006/43/EU (Andrzejewski, 2012).

standards, which implemented into the Polish legal system as national financial auditing standards (NFAS) the following attached to the Resolution:
1. International Standards on Auditing (ISA),
2. International Standards on Review Engagements (ISRE),
3. International Standards on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information published by the International Auditing and Assurance Standards Board (IAASB) operating within the framework of the International Federation of Accountants (IFAC).

The provisions of the resolution apply:
1) in the case of entities authorised to audit financial statements, conducting studies or reviews of financial statements of public interest entities – to audit and review of financial statements compiled for periods ending on 31 December 2016 and later,
2) in the case of entities authorised to audit financial statements that do not perform audits or reviews of financial statements of public interest entities – to audit and review financial statements compiled for periods ending on 31 December 2017 and later,
3) for assurance services other than audits and reviews of past financial information started on 1 January 2017 and later.

On 19 February 2018, the National Council of Statutory Auditors adopted Resolution No. 2039/37a/2018 on domestic audit standards (700 (Z), 701, 705 (Z), 706 (Z), 720 (Z), 260 (Z), 570 (Z)) regarding adoption of national auditing standards 700 (Z), 705 (Z), 706 (Z), 720 (Z), 260 (Z), 570 (Z)), which replaced the national auditing standards introduced for use by Resolution No. 2783/52/2015 of the National Council of Statutory Auditors on 10 February 2015 with numbers 700, 705, 706, 260, 570 respectively and adopted for application ISA 701 "Communicating Key Audit Matters in the Independent Auditor's Report".

The table below presents a summary of applicable ISAs.

Table 1. List of applicable ISAs (status as at 8 August 2018)

ISAs concerning overall principles		
1.	ISA 200	Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with International Standards on Auditing
2.	ISA 210	Agreeing the Terms of Audit Engagements
3.	ISA 220	Quality Control for an Audit of Financial Statements
4.	ISA 230	Audit Documentation
5.	ISA 240	The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements
6.	ISA 250	Consideration of Laws and Regulations in an Audit of Financial Statements
7.	ISA 260 (z)	Communication with Those Charged with Governance
8.	ISA 265	Communicating Deficiencies in Internal Control to Those Charged with Governance and Management
ISAs concerning audit planning and audit risk assessment		
9.	ISA 300	Planning an Audit of Financial Statements
10.	ISA 315 (z)	Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment
11.	ISA 320	Materiality in Planning and Performing an Audit
12.	ISA 330	The Auditor's Responses to Assessed Risks

13.	ISA 402	Audit Considerations Relating to an Entity Using a Service Organization
14.	ISA 450	Evaluation of Misstatements Identified during the Audit
ISAs concerning audit evidence, including going concern		
15.	ISA 500	Audit Evidence
16.	ISA 501	Audit Evidence-Specific Considerations for Selected Items
17.	ISA 505	External Confirmations
18.	ISA 510	Initial Audit Engagements-Opening Balances
19.	ISA 520	Analytical Procedures
20.	ISA 530	Audit Sampling
21.	ISA 540	Auditing Accounting Estimates, Including Fair Value Accounting Estimates, and Related Disclosures
22.	ISA 550	Related Parties
23.	ISA 560	Subsequent Events
24.	ISA 570 (z)	Going Concern
25.	ISA 580	Written Representations
ISAs concerning using the work of other persons		
26.	ISA 600	Special Considerations-Audits of Group Financial Statements (Including the Work of Component Auditors)
27.	ISA 610 (z)	Using the Work of Internal Auditors
28.	ISA 620	Using the Work of an Auditor's Expert
ISAs concerning forming an opinion and auditor’s reporting		
29.	ISA 700 (z)	Forming an Opinion and Reporting on Financial Statements
30.	ISA 701	Presentation of key audit issues in an independent auditor’s report
31.	ISA 705 (z)	Modifications to the Opinion in the Independent Auditor's Report
32.	ISA 706 (z)	Emphasis of Matter Paragraphs and Other Matter Paragraphs in the Independent Auditor's Report
33.	ISA 710	Comparative Information-Corresponding Figures and Comparative Financial Statements
34.	ISA 720 (z)	The Auditor's Responsibilities Relating to Other Information in Documents Containing Audited Financial Statements
ISAs concerning special information		
35.	ISA 800	Special Considerations-Audits of Financial Statements Prepared in Accordance with Special Purpose Frameworks
36.	ISA 805	Special Considerations-Audits of Single Financial Statements and Specific Elements, Accounts or Items of a Financial Statement
37.	ISA 810	Engagements to Report on Summary Financial Statements

Source: authors’ own work based on: (Lachowski, 2016, pp. 20–22)

3. PURPOSE OF THE AUDIT OF FINANCIAL STATEMENTS

The newly implemented in Poland International Standards on Auditing came as no surprise to some auditors, as they used to perform their audits in accordance with the procedures currently introduced as mandatory. Another group of auditors did not previously apply the implemented solutions but observed all aspects included in the standards when carrying out audit activities. The fact that there was no requirement to refer in writing to specific issues analysed during the audit of financial statements in these cases did not compromise the quality of auditor activities. Therefore, the need to change audit documentation relating to financial statements forced auditors not only to check and verify individual statements, but also to formulate a reply or conclusion in writing. The remaining group of auditors comprises those for whom the standards introduced are not only an obligation but also a completely new approach to the audit of financial statements.

The newly implemented International Standards on Auditing are the result of an effort to standardise the quality of services provided by auditors and auditing companies.

In accordance with applicable regulations, the purpose of an audit is to enhance the degree of confidence of intended users in the financial statements (ISA 200, paragraph 3). This objective is achieved through the auditor's opinion on whether the financial statements are prepared, in all material respects, in accordance with the applicable financial reporting framework. (ISA 200, paragraph A1). In his opinion, the auditor speaks on whether the financial statements give a true and fair picture of the economic entity, including primarily its financial situation. It is assumed that the audit procedure is carried out in accordance with the ISA and in compliance with ethical requirements.

The obligation for the auditor to act ethically is repeatedly emphasised in ISA provisions. Ethics statements included in individual paragraphs emphasise ethics' integral relationship with the activities performed by the auditor, at the same time indicating the desired standard of activities. Embedding statements regarding ethical behaviour into the content of standards, highlighting them and reminding about their existence and significance unequivocally indicates that ethical principles are not only what *can* be applied but what *must* be implemented in the activities of the auditor.

It should be borne in mind that the auditor's opinion is not a guarantee that the entity will survive in the future market, nor does it confirm management's effectiveness in the conduct of the entity's business. However, there may be situations in which the auditor will be obliged, under separate laws or regulations, to express opinions on other specific matters, such as the effectiveness of internal control or the consistency of separate management reports with financial statements. The standards also contain requirements and guidelines regarding such matters to the extent to which they relate to the opinion on financial statements.

Before staring cooperation with the client, the auditor weighs up several important issues that will be relevant to his decision. Knowledge of the prospective client is one of the first considerations influencing the auditor's further activities. Recognition of the client with whom the auditor and the audit firm will be involved is an element of the risk inherent in accepting an audit of the financial statements. The risks arising from undertaking cooperation with a client with whom the auditor cooperated as part of the provision of other services or another audit of the financial statements is significantly lower than in the case of a brand new engagement. Risk assessment and the taking of an engagement to audit the financial statements are an inherent part of the risk management process in the audit firm. Acceptance of the engagement is the beginning of the process of auditing the financial statements.

Another important issue is to answer the question on what difficulties may arise during the audit of the financial statements and what may be the reason for them. Accurate verification of the experience possessed by the statutory auditor and his team, competence, independence from the client, human, financial and technical resources all constitute the basis for accepting the engagement. Fast access to independent experts who can provide expert assistance is also important. It should also be remembered that certain engagements cannot be accepted.

The auditor agrees to accept or continue an audit engagement only when the basis upon which it is to be performed has been agreed, through (ISA 210, paragraph 3):
(a) establishing whether the preconditions for an audit are present; and
(b) confirming that there is a common understanding between the auditor and management and, where appropriate, those charged with governance, of the terms of the audit engagement.

The auditor agrees the terms of the audit engagement with the management or those charged with governance (ISA 210, paragraph 9). All arrangements regarding the terms of the study order are laid down in the form of an audit engagement contract or other written agreement. They include (ISA 210, paragraph 10):

a) the objective and scope of the audit of the financial statements,
b) the responsibilities of the auditor,
c) the responsibilities of management,
d) identification of the applicable financial reporting framework for the preparation of the financial statements; and
e) reference to the expected form and content of any reports to be issued by the auditor and a statement that there may be circumstances in which a report may differ from its expected form and content.

The form and content of the audit engagement contract may vary depending on the audit entity (ISA 210, paragraph A23). In addition to the items described above, the audit engagement contract may also include:

- elaboration of the scope of the audit, including reference to applicable legislation, regulations, ISAs, and ethical and other pronouncements of professional bodies to which the auditor adheres,
- the form of any other communication of results of the audit engagement,
- the fact that because of the inherent limitations of an audit, together with the inherent limitations of internal control, there is an unavoidable risk that some material misstatements may not be detected, even though the audit is properly planned and performed in accordance with ISAs,
- arrangements regarding the planning and performance of the audit, including the composition of the audit team,
- the expectation that management will provide written representations,
- the agreement of management to make available to the auditor draft financial statements and any accompanying other information in time to allow the auditor to complete the audit in accordance with the proposed timetable.
- the agreement of management to inform the auditor of facts that may affect the financial statements, of which management may become aware during the period from the date of the auditor’s report to the date the financial statements are issued,
- the basis on which fees are computed and any billing arrangements,
- a request for management to acknowledge receipt of the audit engagement letter and to agree to the terms of the engagement outlined therein,
- arrangements concerning the involvement of other auditors and experts in some aspects of the audit,
- arrangements concerning the involvement of internal auditors and other staff of the entity,
- arrangements to be made with the predecessor auditor, if any, in the case of an initial audit,
- any restriction of the auditor’s liability when such possibility exists,
- a reference to any further agreements between the auditor and the entity,
- any obligations to provide audit working papers to other parties.

When the auditor intends to undertake a recurring audit, the auditor shall assess whether circumstances require the terms of the audit engagement to be revised and whether there is a need to remind the entity of the existing terms of the audit engagement (ISA 210, paragraphs 13, A28.) The auditor may decide not to send a new audit engagement letter or other written agreement for each audit.

A very important aspect that has been emphasised in the ISA regulations involves the liability of the auditor, the management and the need to make the client aware of his obligations.

The provisions of the ISAs (ISA 200, paragraph A2; ISA 210, paragraph 6) explicitly indicate that an audit in accordance with the standards is based on the assumption that the management of the entity or those charged with governance are aware of and confirm their responsibility for:

a) the preparation of the financial statements in accordance with the applicable regulations
b) such internal control as management and, where appropriate, those charged with governance determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error; and
c) provide the auditor with:
    - access to all information that is relevant to the preparation of the financial statements such as records, documentation and other matters;
    - additional information that the auditor may request for the purpose of the audit from management or those charged with governance for the purpose of the audit and unrestricted access to persons within the entity from whom it is necessary to obtain audit evidence.

The issue of managerial responsibility and management awareness thereof is widely discussed in ISA 210 (paragraph 1). It should be noted that the auditor is responsible for agreeing the terms of the audit engagement with the management or those charged with governance, while the auditor should in return receive confirmation that the agreed terms are understandable (ISA 210, paragraphs 6, A11–A14, A20).

It is a mandatory requirement that the auditor should obtain a written representation from management that it has fulfilled its responsibility (ISA 210, paragraph A13, ISA 580, paragraphs 10–12). In practice, the auditor should notify the management that receipt of such written representations will be expected. One of the possible solutions is to talk or submit a draft statement or contract, where this expectation will be clearly emphasised. At the same time, the auditor indicates other statements, which will also be necessary in the course of further audit of the financial statements. If the managements fails to confirm its responsibility or refuses to provide a written representation, the auditor will not be able to obtain sufficient and appropriate audit evidence (ISA 210, paragraph A14).

4. ISA PHILOSOPHY – RISK-BASED AUDIT

As already described in the paper, according to ISA 200, the purpose of the audit is to enhance the confidence of intended users in financial statements. This is achieved by the auditor's opinion on whether the financial statements have been, in all material respects, prepared in accordance with the applicable financial reporting framework. The basis for the auditor's giving an opinion is, as required by the ISA, obtaining by the auditor an adequate assurance that the financial statements as a whole do not contain significant distortions regardless of whether these were caused by error or fraud.

The ISAs introduce a risk-based approach to the audit. This means that the centre of gravity of the audit is shifted towards the identification of risks in the financial statements. The process of identifying and assessing risks is one of the key elements of the planning of the entire audit, and if carried out properly, it enables the auditor to spot potential irregularities already at this initial stage.

The following is a brief definition of risks[4].

The risk of material misstatement (RMM) is the risk that the financial statements were significantly distorted before the audit. The ISAs admit that the auditor will identify and assess the risks of material misstatement, either in aggregate or by breaking it down into constituent parts, i.e. inherent risk and control risk.

[4] Cf. e.g. paper by: (Siemińska, 2014).

Inherent risk (IR) is the risk arising from the susceptibility of a given statement concerning a group of transactions, balances or disclosures, to a distortion that may be material, either individually or when aggregated with other misstatements, assuming that there is no internal control.

On the other hand, control risk (CR) arises from the inability of the entity's internal control to prevent, or detect and correct in time, distortions that may occur in a statement about a group of transactions, balances or disclosures that may be material, either individually or when aggregated with other misstatements. Detection risk is the risk that the procedures performed by the auditor to reduce audit risk to an acceptably low level will not detect a misstatement that exists and that could be material, either individually or when aggregated with other misstatements (ISA 200, paragraph 13e).

The auditor identifies and assesses the risk of material misstatement:

- at the level of the financial statements and
- at the level of findings for groups of transactions, account balances and disclosures, which creates grounds for designing and conducting further audit procedures.

It should be noted that in the previous methodology i.e. in an approach which was not based on risk assessment, the study was often conducted according to a fixed program, and the audit procedures for individual items in financial statements in each audited unit were virtually the same.

The key element of the study according to ISA is the correct identification and assessment of the risk to which the auditee is exposed. This requires the auditor to understand the entity and his environment. It should be emphasised that the risk cannot be identified without having a knowledge of the client or without understanding his activities and the economic and legal conditions in which he conducts his business. Pursuant to ISA 315 (paragraph 11), in order to obtain an understanding of the audited entity, the auditor must analyse:

a) relevant industry, regulatory, and other external factors.
b) the nature of the entity, including:
    - its operations,
    - its ownership and governance structures,
    - the types of investments that the entity is making and plans to make, including investments in special-purpose entities; and,
    - the way that the entity is structured and how it is financed,
c) the entity’s selection and application of accounting policies, including the reasons for changes thereto. The auditor shall evaluate whether the entity’s accounting policies are appropriate for its business and consistent with the applicable financial reporting framework and accounting policies used in the relevant industry,
d) the entity’s objectives and strategies, and those related business risks that may result in risks of material misstatement,
e) the measurement and review of the entity’s financial performance[5].

It should be remembered that the auditor must achieve an understanding of the internal control relevant to the audit (ISA 315, paragraph 12).

Understanding internal control helps the auditor to identify types of potential misstatements and factors affecting the risk of material misstatement, and to design the type, time distribution, and scope of further audit procedures. It is important that the auditor has no obligation to audit the internal control system, except when it is included in the contract with the client.

ISA 315 contains a discussion of the factors that the auditor should analyse. Selected factors are presented in the tables below.

[5] Matters relating to measurement and assessment of financial performance and the entity’s value were addressed e.g. in: (Maślanka, 2007).

Table 2. Industry, regulatory and other external factors analysed by the auditor

Item	Description
Industry factors	The market and competition, cyclical or seasonal activity, product technology relating to the entity's products. The industry in which an entity operates may cause specific risks of a material misstatement due to the nature of the business or the degree of regulation. For example, long-term contracts may require making significant estimates of revenue and expenses, which creates a risk of significant distortion. The standard stresses that the team performing the audit should include people with adequate knowledge and experience.
Regulatory factors	Accounting principles and industry specific practices, regulatory framework for a regulated industry, legislation and regulation that significantly affect the entity's operations, environmental requirements affecting the industry and the entity's business.
Other external factors	General economic conditions, interest rates, availability of financing, and inflation or currency revaluation.

Source: authors' own work based on: ISA 315, paragraphs A24–A28

Table 3. Aspects of the entity's characteristics analysed by the auditor

Item	Description
Business operations	• type of revenue sources, products or services and markets, including involvement in ecommerce, • conduct of operations (e.g. stages and production methods or activities prone to environmental risks), • alliances, joint ventures and outsourcing, • geographical dispersion and industry segmentation, • the location of production plants, warehouses and offices as well as inventory distribution and size, • key customers and major suppliers of goods and services, contracts of employment (including the existence of collective agreements, pension plans and other post-employment benefits, share options or agreements regarding incentives and government regulations regarding employment issues), • R&D activities and expenditures incurred, • transactions with related entities,
Investments and investment activities	• planned or recently executed acquisitions or divestitures, • investments and dispositions of securities and loans, • capital investment activities, • investments in non-consolidated entities, including partnerships, joint ventures and special-purpose entities,
Financing and financing activities	• major subsidiaries and associated entities, including consolidated and non- consolidated structures, • debt structure and related terms, including off-balance-sheet financing arrangements and leasing arrangements, • beneficial owners,
Financial reporting practices	• accounting principles and industry specific practices, including for industry-specific significant classes (for example, loans and investments for banks, or research and development for pharmaceuticals), • revenue recognition, • accounting for fair values, • foreign currency assets, liabilities and transactions,

	• accounting for unusual or complex transactions, including those in controversial or emerging areas (for example, accounting for stock-based compensation), • accounting of atypical or complex transactions, • the effect of significant accounting policies in controversial or emerging areas for which there is a lack of authoritative guidance or consensus, • changes in the entity's accounting policies, • financial reporting standards and laws and regulations that are new to the entity and when and how the entity will adopt such requirements

Source: authors' own work based on: ISA 315, paragraph A31

Table 4. Other matters analysed by the auditor

Item	Description
The entity's selection and application of accounting policies (paragraph A35)	• the methods the entity uses to account for significant and unusual transactions, • the effect of significant accounting policies in controversial or emerging areas for which there is a lack of authoritative guidance or consensus, • changes in the entity's accounting policies, • financial reporting standards and laws and regulations that are new to the entity and when and how the entity will adopt such requirements,
Objectives and strategies and related business risk (paragraph A39)	ISA 315 underlines that gaining an understanding of the business risks facing the entity increases the probability of identifying risks of material misstatement of the financial statements. The ISA highlight the following matters: • industry developments • new products and services • expansion of the business • new accounting requirements • regulatory requirements • current and prospective financing requirements • use of IT • the effects of implementing a strategy, particularly any effects that will lead to new accounting requirements.
Measurement and review of the entity's financial performance (paragraph A43)	• key performance indicators (financial and non-financial) and key ratios, trends and operating statistics, • period-on-period financial performance analyses, • budgets, forecasts, variance analyses, segment information and divisional, departmental or other level performance reports, • employee performance measures and incentive compensation policies, • comparisons of an entity's performance with that of competitors.

Source: authors' own work based on: ISA 315

It is worth emphasising that Appendix 2 to ISA 315 contains examples of conditions and events that may indicate a risk of material misstatement.

The guide to the application of International Standards on Auditing in the study of small and medium-sized entities gives information on where to seek information about the client and his environment. It emphasises that while collecting information about the client, the auditor, in addition to acquiring it from the client himself, should also use other sources. The following diagram presents information and their sources.

Table 5. Internal and external sources of client information

Item	Internal sources	External sources
Financial information	Financial statements Budgets Reports Performance measures Tax returns Accounting policies in use Judgments and estimates	Information on the Internet Industry information Competitive intelligence Credit rating agencies Creditors Government agencies Media and other external parties
Non-financial information	Vision, values, objectives, and strategies Organization structure Job descriptions Human resources Performance indicators Policy and procedure manuals	Information on the Internet Trade association data Industry forecasts Government agencies Media articles

Source: Przewodnik Międzynarodowych Standardów Rewizji Finansowej w badaniu małych i średnich jednostek, tom 2, IFAC, KIBR wydanie trzecie, 2013, p. 86

Fraud is a special reason for the occurrence of risk as detailed in ISA 240.

In accordance with ISA 315 (paragraph 6), the auditor carries out risk assessment and identification procedures. Towards this end, he uses the following:

a) enquiries of management, of appropriate individuals within the internal audit function (if the function exists), and of others within the entity who in the auditor's judgment may have information that is likely to assist in identifying risks of material misstatement due to fraud or error,
b) analytical procedures.
c) observation and inspection.

Having identified the risks, the auditor develops and documents the audit strategy and uses a detailed audit plan based on it.

Based on the identified risks, appropriate audit procedures (compliance tests and integrity tests, including analytical and detailed tests) are designed to respond to the identified risk. It should be remembered that during the audit, the auditor should focus on those areas that are most risk-prone and observe the principle of materiality. It should be emphasised that the auditor will have to be more guided by the principles of professional judgment and scepticism. During the entire audit process, it is necessary to constantly update the response to risks to incorporate the knowledge gained.

The auditor then assesses the audit documentation collected making sure that it meets the adequacy requirements of audit evidence that is presented in ISA 500.

During the next stage, the auditor conducts an assessment of the impact of identified distortions on the financial statements. The final stage involves the auditor's reporting and the opinion on the financial statements as a whole.

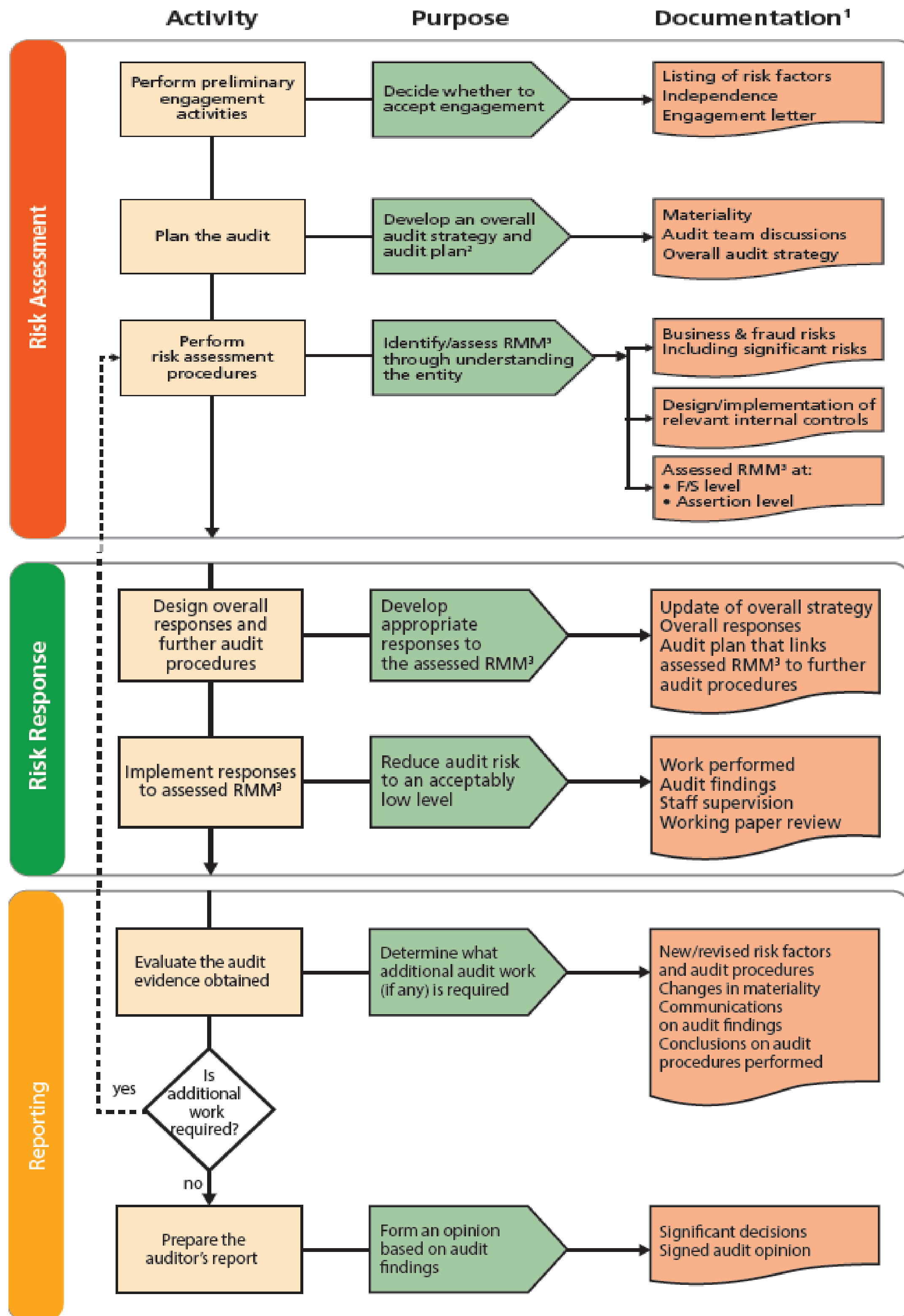
The IFAC Guide proposes the so-called ARR model. According to the authors, the ARR applicable throughout the entire audit very accurately reflects the risk-based methodology.

The ARR model constitutes a practical approach to the elements of the research process, which consists of:

A – assessment of risk,
R – response to risk,
R – reporting by the auditor.

The following exhibit from the IFAC Guide illustrates the different stages of the audit process, taking into account these three elements: risk assessment, risk response and reporting.

Exhibit 1. ARR Model



Source: Przewodnik Międzynarodowych Standardów Rewizji Finansowej w badaniu małych i średnich jednostek, tom 1, IFAC, KIBR wydanie trzecie, 2013, p. 21

5. CONCLUSIONS

The application of uniform audit standards is aimed at ensuring comparability of information e.g. in the case of financial statements of entities belonging to a capital group (where the companies are established in different countries) and thus contributes to the internationalisation of auditing practice, which results in the work of auditors being more reliable.

The obligation to audit financial statements according to the same rules and principles across various countries, unification of procedures is the basis for enhancing the quality of auditors' services.

ISAs also contribute to wider and more effective communication between the auditor and the auditee's supervisory authorities.

ISAs ensure that management are made aware of relevant issues in a timely manner. The efforts of the audit team are focused on key areas, and the audit procedures on specific risks. An important aspect of the audit is understanding internal control.

All these elements indicate and at the same time underscore the importance of and, above all, the need to apply International Standards on Auditing. Understanding the ISAs and the philosophy contained in them is just the beginning of the change process. The process of implementing the ISAs in Poland requires the auditors to expand their knowledge, by making enquiries, consulting, in many cases cooperating with other experts in order to exchange views and self-correct proceedings. It is also important to emphasize the great importance of ethics and ethical attitudes at every stage of the auditors' work.

It should be emphasised that the paper discusses the most important and most notable aspects of the introduction of the International Standards on Auditing into the practice of financial statement audits in Poland. As already indicated, from 1 January 2017, the obligation to implement and apply the new solutions has been vested in a section of auditing companies and auditors, while from 1 January 2018 this obligation has been binding on all auditing companies and auditors without exception. In connection with the above, it is impossible to conduct empirical studies regarding the effectiveness of the implementation of the new regulations in the Polish environment. The several months of their operation in Poland is too short a period to allow comparisons or draw any meaningful conclusions. This paper is a basis for further research and reflection. Empirical research in this area will be the subject of the authors' next paper.

BIBLIOGRAPHY

Andrzejewski M. (2014), *Zmiany regulacyjne w systemie rewizji finansowej i ich wpływ na politykę jakości w firmach audytorskich*, Studia Ekonomiczne, Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach Nr 201, s. 23–35.

Andrzejewski M., Maślanka T. (2015), *Procedures of an audit in the prospective verification of the going-concern principle*, [in:] *IFRS: Global rules & local use*, proceedings of the 3rd international scientific conference Prague, Anglo-American University, Prague – Czech Republic, s. 49–59.

Andrzejewski M., Maślanka T., Mazur-Maślanka I. (2016), *International Financial Reporting Standards (IFRS) and an issue of comparability of assessments of financial standing of the companies listed on the Warsaw Stock Exchange made by the auditors in the reports on the audit of the financial statements*, [in:] *IFRS: Global rules & local use*, proceedings of the 4rd international scientific conference Prague, Anglo-American University, Prague – Czech Republic, s. 56–65.

Dyrektywa 2006/43/WE Parlamentu Europejskiego i Rady z dnia 17 maja 2006 r. w sprawie ustawowych badań rocznych sprawozdań finansowych i skonsolidowanych sprawozdań finansowych, zmieniająca dyrektywy Rady 78/660/EWG i 83/349/EWG oraz uchylająca dyrektywę Rady 84/253/EWG, Dz. Urz. UE L 157 z dnia 09.06.2006.

Dyrektywa Parlamentu Europejskiego i Rady 2014/56/UE z dnia 16 kwietnia 2014 roku zmieniającej Dyrektywę 2006/43/WE w sprawie ustawowych badań rocznych sprawozdań finansowych

i skonsolidowanych sprawozdań finansowych, Dz. Urz. Unii Europejskiej L 158/196 z dnia 27.05.2014.

Kogut J. (2017), *Kierunki zmian w systemie rewizji finansowej oraz ich wpływ na jakość i postrzeganie badania sprawozdań finansowych*, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu Nr 479, s. 86–98.

Lachowski W. K. (2016), *Badanie sprawozdań finansowych małych i średnich jednostek*, Centrum Edukacji KIBR, Warszawa.

Maślanka T. (2007), *Dylematy memoriałowego pomiaru rentowności*, [in:] A. Bogus, M. Wypych (red.), *Harmonizacja rynków finansowych i finansów przedsiębiorstw w skali narodowej i europejskiej*, Difin, Warszawa, s. 520–530.

Pfaff J. (2016), *Nowa jakość badania sprawozdań finansowych jednostek zainteresowania publicznego*, Finanse, Rynki Finansowe, Ubezpieczenia Nr 2(80) cz.2, s. 509–515.

Przewodnik Międzynarodowych Standardów Rewizji Finansowej w badaniu małych i średnich jednostek, tom 1 i 2, IFAC, KIBR wydanie trzecie, 2013.

Rozporządzenie Parlamentu Europejskiego i Rady (UE) nr 537/2014 z dnia 16 kwietnia 2014 roku w sprawie szczegółowych wymogów dotyczących ustawowych badań sprawozdań finansowych, jednostek interesu publicznego, uchylając decyzję Komisji 2005/909/WE, Dz. Urz. UE, L 158/77 z dnia 27.05.2014.

Simińska A. (2014), *Ryzyko w badaniu sprawozdań finansowych*, Studia Ekonomiczne, Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach Nr 190, s. 125–134.

Uchwała 2039/37a/2018 Krajowej Rady Biegłych Rewidentów z dnia 19 lutego 2018 roku w sprawie krajowych standardów badania (700 (Z), 701, 705 (Z), 706 (Z), 720 (Z), 260 (Z), 570 (Z)).

Uchwała 2783/52/2015 Krajowej Rady Biegłych Rewidentów z dnia 10 lutego 2015 roku w sprawie krajowych standardów rewizji finansowej, która wprowadziła do polskiego porządku prawnego jako krajowe standardy rewizji finansowej „KSRF".

Ustawa o biegłych rewidentach i ich samorządzie, podmiotach uprawnionych do badania sprawozdań finansowych oraz o nadzorze publicznym, Dz. U. z 2009 r. Nr 77, poz. 649.

Ustawa z dnia 11 maja 2017 r. o biegłych rewidentach, firmach audytorskich oraz nadzorze publicznym (Dz.U. 2017 poz. 1089).

Zielona Księga; Polityka badania sprawozdań finansowych: lekcje wyciągnięte z kryzysu, Komisja Europejska, Bruksela dnia 13.10.2010, KOM(2010) 561.

USAGE OF INTERNATIONAL ACCOUNTING STANDARDS (IAS) IN CENTRAL AND EASTERN EUROPE

Dagmar ČÁMSKÁ
Czech Technical University, MIAS School of Business & Interdisciplinary Studies, Czech Republic
dagmar.camska@cvut.cz

Jiří KLEČKA
University of Chemistry and Technology, Czech Republic
jiri.klecka@vscht.cz

Abstract
This paper is focused on the usage of International Accounting Standards (IAS) in countries of Central and Eastern Europe. It analyses dependencies between using or not using IAS on selected variables. These variables should characterize main features of enterprises. The variables from microeconomic point of view describe the enterprise size, main area of economic activity, activities abroad and ownership by foreign capital. From the institutional point of view the enterprises are divided according to the countries where they are registered. Descriptive relative indicators are used for the analysis. The conclusion of the analysis should show incentives why some enterprises use IAS more than others. The gained results confirm statements which kind of the enterprises use for bookkeeping and reporting International Accounting Standards (IAS).

Keywords: *activities with foreign capital, enterprise size, incentives to use IAS, international accounting standards*

1. INTRODUCTION

International Accounting Standards (IAS)were accounting standards issued by the International Accounting Standards Committee (IASC) from 1973 till 2000. The IASC was replaced by its follower the International Accounting Standards Board (IASB) in 2001. Since 2001 IASB has been providing the rules under the new label International Financial Reporting Standards (IFRS)[1]. A key feature of these standards is that they are principle-based. The rules-based system is characterized by Carmona and Trombetta (2008) as the system which enables mechanical application because rules are fully specific. On the other hand the principle-based system enables flexibility because they are based on professional judgement as a significant feature of the accounting process (Schipper, 2003).

These standards are widely spread throughout the world. If the local legal framework allows they replace national accounting standards. Since 2005 all listed EU enterprises are required to prepare their consolidated financial statements in accordance with International Financial Reporting Standards (IFRS). The political integration as in the case of EU is not mention as the only driver for the accounting harmonization. Flower (2004) or Ball (2006) add driver forces as the globalization of financial markets and a fact that enterprises operate in different jurisdictions. The uniform regulation should eliminate barriers of trading securities and increase the market efficiency (Daske, 2006). Some authors as Jermakowicz and Gornik-Tomaszewski (2006) or Ball (2006) discus also the reduction of capital cost for enterprises. The effects are caused by transparency, comparability and quality of financial information (Choi and Meek, 2005) when the enterprise prepares its statements in accordance with International Financial Reporting Standards (IFRS), former International Accounting Standards (IAS). Ball (2006) also talks about the decrease in the cost of international communication and transacting. As we see it is discussed from the investor point of view. On the other hand there can be also detected barriers which limit convergence and therefore the enterprises

[1] History information can be accessed at https://www.iasplus.com/en/resources/ifrsf/iasb-ifrs-ic/iasb.

cannot profit form the IFRS advantages. Larson and Street (2004) identify the flowing barriers – underdeveloped capital markets, insufficient guidance on first time IFRS application, the lack of existence of specific transactions, tax-orientation of national accounting system and the complicated nature of some specific standards. The tax-orientation of national accounting systems in most continental European countries is caused by the historical connection of financial reporting and tax legal framework. This conclusion can be found in Eilifsen (1996), Holečková (1996), Haller (2002) or Lamb, Nobes and Roberts (1998).

Financial reporting in accordance with International Financial Reporting Standards (IFRS) can be voluntary or mandatory. The mandatory reporting is caused by the legal framework. On the other hand, the voluntary reporting is permitted by the law and the choice depends on the enterprise or its headquarter. Christenten, Lee, Walker and Zeng (2008) found that in the case of the voluntary adopting the enterprise profit from the advantages of International Financial Reporting Standards (IFRS) more than in the case of the mandatory reporting. Unfortunately, International Financial Reporting Standards (IFRS) or former International Accounting Standards (IAS) flexibility causes differences across countries and regions (Carmona and Trombetta, 2008). Ball (2006) postulates as well that the opinion that uniform standards would lead to uniform financial reporting is naïve.

2. DATA SAMPLE

Data sample was created during the EBRD-World Bank Business Environment and Enterprise Performance Survey in 1999 (EBRD, 1999). The survey was focused on the business environment and competition. It included more than 100 questions. It means that the area of accounting was not dominant and it created just a small part of the whole survey. The accounting was not analysed from such many points of view as in this paper. In that time International Financial Reporting Standards (IFRS) were still known and called as International Accounting Standards (IAS). It has a consequence that this paper will use dominantly the abbreviation IAS. The used data sample is unique because it contains enterprises from almost all Central and Eastern Europe countries. For further purposes the data sample is divided into three groups. These groups depend on the geographical location and historical circumstances. Therefore, the following groups were created – V4 countries, Balkan countries and countries which were part of former Soviet European Block. The countries included in each group are presented in table 1. Furthermore, the table presents number of the analysed enterprise units.

These numbers and country complexity are so exceptional that it has to outweigh weaknesses. The first weakness is definitely the analysed year. There is already a huge gap between the survey year and the present year. The second weakness is based on the missing data. The area of accounting was not dominant and therefore answers for some enterprises are missing. The enterprises did not mention the answer if they use national or international accounting standards or the respondent from the enterprise did not know which standards were used. It has to be noted that majority enterprises has this answer complete. We just talk about several units of the respondents.

Table 1. Structure of Data Sample

V4 Countries		**Balkan Countries**		**Former Soviet European Block**	
Country	No. of Companies	Country	No. of Companies	Country	No. of Companies
Czech Republic	149	Albania	163	Belarus	132
Hungary	147	Bosnia and Herzegovina	192	Estonia	132
Poland	246	Bulgaria	130	Latvia	166
Slovakia	138	Croatia	127	Lithuania	112
		FYR Macedonia	136	Moldova	139
		Romania	125	Russia	552
		Slovenia	125	Ukraine	247

Source: authors based on EBRD-World Bank Business Environment and Enterprise Performance Survey (1999)

Table 1 presents the sample structure and the number of enterprises which were analysed in the each country. The following chapter introduces research questions which will be analysed in this paper. The analysis will be based on the aforementioned data sample.

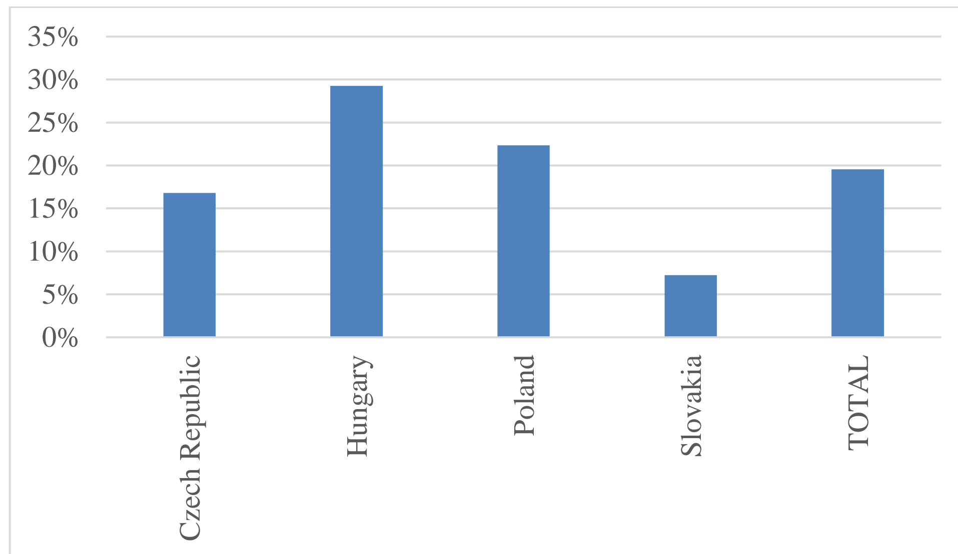
3. RESEARCH QUESTIONS

The research questions are based on the dependency of using International Accounting standards (IAS) on different variables. The dependencies are just analysed in the descriptive way if the enterprises use or do not use IAS. The first variable is obvious from the sample structure introduced above. The first variable is country itself accompanied by the region (V4 countries, Balkan region and former Soviet European block). The country location is very important. The historical development forms legal and economic environment of the country. It influences the quality of institutions. The second variable can be described as the main area of enterprise activity. The third variable group is connected with the enterprise size which can be measured by the number of full-time employees or by the annual turnover expressed in dollars for the comparability. The last variable group depends on relationships with foreign countries. These relationships can be observed in two ways if the enterprise is owned by foreign capital or if the enterprise itself has activities abroad. The results for the introduced questions will be described in the next chapter. The results show reasons why some enterprises uses or used (according to the time of the survey) International Accounting Standards (IAS) more than others.

4. RESULTS

This chapter introduces gained results according to the selected variables. The first analysed area is the enterprise location. The results will show if some countries prefer International Accounting Standards (IAS) more than others and if there are differences among the selected regions. The first region is the group of V4 countries including the Czech Republic, Hungary, Poland and Slovakia. The results are included in figure 1 which shows the percentage use of IAS in the individual countries as well as in the whole region.

Figure 1. Usage of IAS in the group of V4 Countries

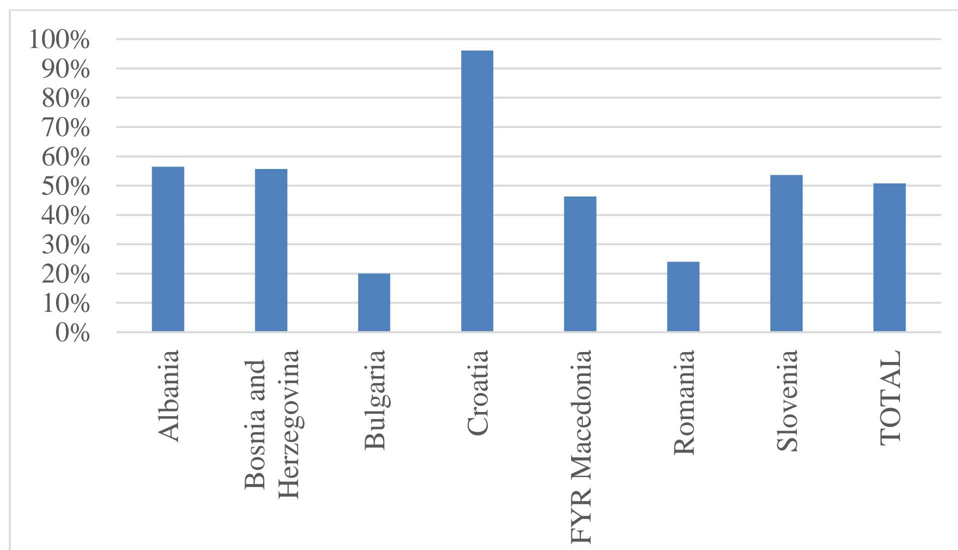


Source: authors based on EBRD-World Bank Business Environment and Enterprise Performance Survey (1999)

It is visible from figure 1 that there are differences among the countries. The Hungarian enterprises report with the use of IAS the most (almost 30% of the sample). On the other hand, the Slovakian enterprises report the less (lower than 10% of the sample). The average is close to 20% but it must be noted that although the Czech Republic, Hungary and Slovakia contain comparable number of the enterprises in the sample Poland overweighs because of its bigger area and population size. It can be concluded that the use of IAS in Central Europe is limited. It is caused by limited market liquidity. Warsaw Stock Exchange has higher traded volume than others. These countries belong to the most developed in the sample and also their institutions could be marked as institutions of higher quality. It has a consequence that the national standards achieve enough high quality and transparency. Another reason is that the national accounting standards have to be used for tax purposes absolutely in the Czech Republic and as well as in Slovakia. The environment and opinions is still developing. Detailed information for the Czech Republic can be found in Strouhal and Bonaci (2014) or in Jindřichovská and Kubíčková (2016).

The second analysed region is Balkan. The results are included in figure 2 which shows the percentage use of IAS in the individual countries as well as in the whole region.

Figure 2. Usage of IAS in the group of Balkan Countries

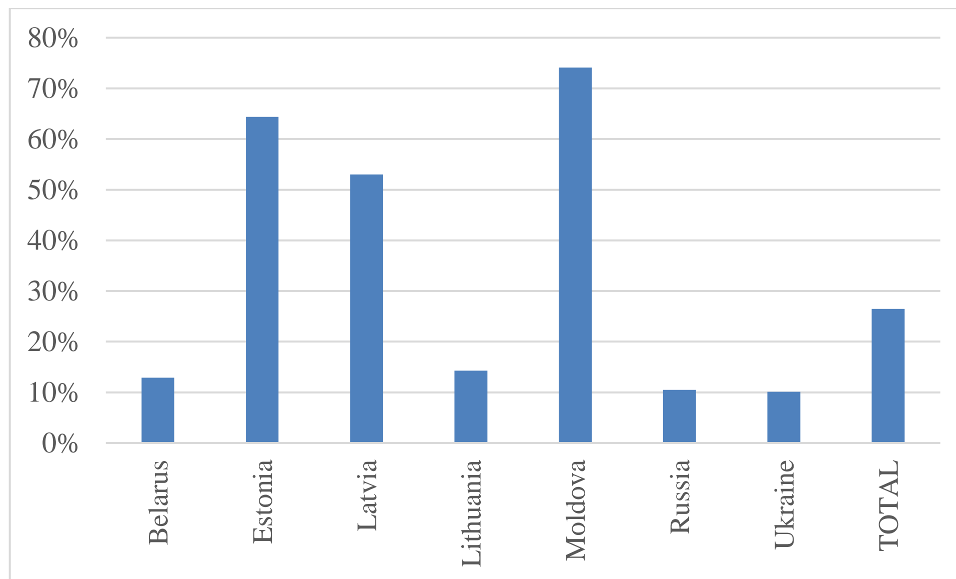


Source: authors based on EBRD-World Bank Business Environment and Enterprise Performance Survey (1999)

Surprisingly, the less developed region of Balkan countries uses IAS more than the region of V4 countries. The average shows that every second enterprise uses IAS in this region. On the other hand there are huge differences among countries. Bulgaria and Romania use the less (around 20% of the sample). Albania, Bosnia and Herzegovina, FYR Macedonia and Slovenia reach comparable results around 50%. Croatia displays the most use because the number exceeds 90%. The number of analysed units is quite similar if the countries are compared (with a little higher share for Bosnia and Herzegovina).

The third group consists of countries which were part of Soviet Block before 1990's. These countries are the most heterogeneous in our sample. There are more developed countries with the connection to the European Union as Baltic states(Estonia, Latvia and Lithuania), less developed countries as Belarus and Moldova and huge economies as Russia followed by Ukraine in that region.

Figure 3. Usage of IAS in the group of Former Soviet European Block



Source: authors based on EBRD-World Bank Business Environment and Enterprise Performance Survey (1999)

Figure 3 shows two subgroups. First there are countries which use IAS a lot as Estonia, Latvia and Moldova. These economies are small. Second there are countries which do not use IAS much as Belarus, Lithuania, Russia and Ukraine. Except Lithuania these economies are less open and they can be marked as larger. The position of Lithuania is exceptional because it belongs to the Baltic states but it has a different approach to the use of IAS. Moldova is the typical small economy with lower quality of institutions and therefore it is more open for the IAS usage. The whole region does not use International Accounting Standards (IAS) so much because of the size of Russia and Ukraine whose lower share of usage outweighs the other countries.

The results display that there is no single explanation why some countries use IAS more than others in Central and Eastern Europe. It is set of reasons which are not always valid because it depends on the national conditions and circumstances. Some possibilities were mentioned but it needs a deeper analysis based on the national conditions. This issue is very complex. On the other hand the main barrier for most of countries should be noted and it is tax-driven nature of accounting. Larson and Street (2004) came in their survey to the conclusion that only Estonia, Latvia, Poland and Slovenia did not mention this obstacle in 2002. On the other hand, Wolfe (2004) talks mainly about the lack of liquid markets.

The second analysed dependency is connected with the main area of economic activity. The enterprises belong to different industry branches. Some branches are more transparent, more open to investors or even more publicly traded than others. The data had to be analysed with the obstacle of missing data. Therefore, table 2 contains not only percentage of the enterprises using and not using IAS but also the group of the enterprises which did not mention the answer (referred as IAS?). This

share does not exceed 15% for any industry branch. It is the highest for mining/quarrying and other. There were also some business units which did not mention the area of their main activity (referred as N/A). This share is lower than 1% on the total sample. The last column of table 2 displays the importance of the mentioned industry branch in the data sample. Unsurprisingly, the most common industry branches are manufacturing, trading/wholesale, retail and also construction.

Table 2. Usage of IAS according to main area of activity

Main Area of Activity	IAS yes	IAS no	IAS ?	Share on total
Farming/fishing/forestry	19%	77%	4%	10%
Mining/quarrying	32%	55%	14%	1%
Manufacture/repair	39%	52%	9%	31%
Building/construction	25%	66%	9%	8%
Power generation	73%	18%	9%	0%
Trading/wholesale	32%	60%	8%	15%
Retail	23%	68%	9%	14%
Transport (air, land, sea)	35%	55%	9%	6%
Financial services	64%	31%	5%	2%
Personal services	38%	56%	6%	5%
Business services	37%	53%	10%	7%
Local/native/government/agency	100%	0%	0%	0%
Health, welfare, education	0%	100%	0%	0%
Communications company	57%	43%	0%	0%
Other	44%	44%	11%	1%
N/A	0%	100%	0%	0%

Source: authors based on EBRD-World Bank Business Environment and Enterprise Performance Survey (1999)

The enterprises use IAS almost in all analysed industry branches. There are two exceptions – the category Health, welfare, education and the category N/A. It has to be taken into account that share of these categories is below 1% on the total sample. The share is not zero but rounding the number causes that zero is displayed in the table. International accounting standards are mostly used in the industry branches which have extremely low share on the total sample. These activities are Local/native/government/agency (IAS 100%), Power generation (IAS 73%), Financial services (IAS 64%) and Communications company (IAS 57%). The highest use can be caused by regulation or public trading. The regulation would occur because of the industry importance as in the case of power and communication enterprises which create national infrastructure. The enterprises providing power, financial and communication services are usually the most publicly trading companies and therefore it is not a wonder that they mentioned the reporting with IAS. IAS reporting should increase the transparency and comparability for international investors. The enterprises belonging to other activities use IAS in less than half cases. Probably the use of IAS would be also influenced by the enterprise size. The majority of companies in agriculture/mining/fishing or retail has the smaller size. It would explain the lower share of the IAS usage in these branches.

The next variable group describes the enterprise size which has been already mentioned in the connection with the previous variable (economic activity). The enterprise size can be generally expressed by the value of total assets, the value of sales or the number of employees. The value of assets is influenced by many other factors than only by the enterprise size. It could be the way of accounting depreciation, initial price of property, accounting practices, enterprise age and the level of automation. The value of sales or number of employees can be influenced also by other factors but it must be admit that the level of these influences is much lower. The description will start with the number of employees. Table 3 contains the results of the usage of IAS according to the number of

the employees. Some enterprises did not mention the number of the employees and some enterprises said they do not have any full-time employees. It has to be taken into account that the share of these two groups is extremely low how it is displayed by the last column.

Table 3.Usage of IAS according to number of employees

Number of full-time employees	IAS yes	IAS no	IAS ?	Share on total
Don't know (N/A)	50%	50%	0%	0%
None (0)	20%	80%	0%	0%
1–9	20%	69%	11%	28%
10–49	35%	57%	9%	21%
50–99	34%	57%	8%	15%
100–199	38%	56%	6%	13%
200–499	38%	55%	7%	15%
7 500 or more	50%	46%	4%	9%

Source: authors based on EBRD-World Bank Business Environment and Enterprise Performance Survey (1999)

The results confirm the statement that larger enterprises use International Accounting Standards (IAS) more because they need to be more transparent. The need of transparency results from publicly trading, investor's point of view, higher volume of trade. The share of the usage IAS increases when the enterprise is larger. With the exception of the group 50-99 employees there is the slight drop by 1%. This drop cannot be marked as significant because it is just a value of a statistical mistake. The number of the employees is influenced by the industry branch and by the level of automation.

Other possibility how to express the enterprise size is the annual turnover. There is the problem of common currency and therefore the annual turnover was converted to dollars from the national currencies by EBRD-World Bank Business Environment and Enterprise Performance Survey (1999). On one hand the dollar enables the comparability on the other hand the conversion can distort the enterprise size among countries. The distortion is based on a situation that some countries used the fixed exchange rate to the dollar and some currencies were not easily traded in 1990's. The used exchange rate is not free market exchange rate in all cases. there is again the obstacle of the missing data. Some enterprises did not mention the value of their annual turnover (value of total enterprise sales) and some enterprises answered they do not have any sales. The share of the group without sales is insignificant (below one per cent) but the share of the group with non-mentioned sales is significant because it reaches 8% of the total sample. This could have two reasons. The respondent did not know the value of sales during the survey because that person was responsible for other business activities in the enterprise. Second the respondent did not want to mention this piece of information during the survey. The last problem of the missing data is that some enterprises did not mention if they use or do not use International Accounting Standards (IAS). This share is for each group used in table 4 maximally 10% with the exception do not know group. The value for this group confirms that the respondents knew less relevant information in the survey than others. The division of the enterprises according to their annual turnover are displayed in table 4.

Table 4.Usage of IAS according to value of annual sales

Total sales in the last year, USD	IAS yes	IAS no	IAS ?	Share on total
Don't know (N/A)	25%	59%	16%	8%
No sales (USD 0)	57%	43%	0%	0%
Under USD 250,000	22%	70%	8%	44%
USD 250–499,000	33%	60%	7%	10%
USD 500–999,000	35%	59%	6%	7%
USD 1–1.99 million	40%	50%	10%	7%
USD 2–4.99 million	45%	48%	7%	8%
USD 5–9.99 million	56%	38%	7%	5%
USD 10–19.99 million	55%	39%	6%	4%
USD 20–49.99 million	57%	34%	9%	3%
USD 50–499 million	70%	27%	3%	2%
USD 500 million or more	62%	33%	5%	1%

Source: authors based on EBRD-World Bank Business Environment and Enterprise Performance Survey (1999)

Table 4 confirms that larger enterprises use International Accounting Standards (IAS) more than smaller enterprises. The share of the IAS usage is increasing when the enterprises are larger. Over 60% of the largest enterprises used IAS for accounting and reporting. From the data point of view the statement is not valid continually because there is 8% drop for the largest group. It should be noted that this group does not contain many enterprises because the share is 1% on the total sample. Second the IAS usage is still higher in this group (USD 500 million or more) than in the third largest group (USD 20–49.99 million).

The last variable group describes the relationships of the enterprise with abroad. On one hand the enterprise can be fully or partly owned from abroad. It means that foreign investors had bought some enterprise share. The investor could be natural as legal person. This circumstance was detected by the question if a foreign company has a financial stake in this enterprise. On the other hand the enterprise itself can have the financial stake in the foreign companies. This circumstance was monitored by the question if the enterprise has holdings or operations in other countries. The results of these two questions are introduced by table 5 and 6. There was again the problem that some respondents did not answer these questions but their share is highly limited (always below one per cent). It is visible in the last row of tables 5 and 6. Start with the area if the enterprise is owned or not owned by the foreign capital. These results could be found in table 5.

Table 5.Usage of IAS according to foreign financial stake

Does a foreign company have a financial stake?	IAS yes	IAS no	IAS ?	Share on total
Yes	58%	36%	7%	13%
No	29%	63%	8%	87%
N/A	57%	43%	0%	0%

Source: authors based on EBRD-World Bank Business Environment and Enterprise Performance Survey (1999)

If the foreign company has the financial stake the enterprise will use International Accounting Standards (IAS) more than in the case of no financial stake. The enterprises with foreign ownership use IAS even twice more: That it is a significant difference caused by the ownership.

Second, the point of view will be turned. In this case the enterprise is not owned by the foreign capital but the enterprise itself has some activities abroad. These activities can be exactly the same as the enterprise possession abroad or it can be defined as other activities abroad than ownership. These results are included in table 6.

Table 6. Usage of IAS according to operations abroad

Holdings or operations in other countries?	IAS yes	IAS no	IAS ?	Share on total
Yes	63%	32%	5%	8%
No	30%	62%	8%	92%
N/A	0%	50%	50%	0%

Source: authors based on EBRD-World Bank Business Environment and Enterprise Performance Survey (1999)

The conclusions are similar as in the case of foreign financial stake. If our enterprise is active abroad it will use International Accounting Standards (IAS) more than in the case of only domestic operations. The share of the IAS usage is again double in this group.

The overall connection with foreign countries is not so strong. It must be noted that only 8% of enterprises had some activities abroad and only 13% of enterprises were owned or partly owned by the foreign capital. In total it is minority of the analysed sample.

5. DISCUSSION

The previous chapter contains the gained results. This part should discuss some limitations of the study. The first already mentioned obstacle is the year when the research was conducted. We talk about the year 1999. On the other hand we must admit that the analysis is not focused on the time development or current conditions. It is focused on the dependencies using and not using International Accounting Standards (IAS) in the relationship for other variables. This aim is fully fulfilled by the used data sample which is unique in its size and a coverage of Central and Eastern Europe. The authors are not yet aware that another newer sample would be publicly available. The second obstacle is the respondents' selection. The selection was not conducted randomly but as quota selection. It should respect the population structure in the individual countries. This selection could influence the gained results significantly. Third limitation is that the key question if the enterprises use or do not use International Accounting Standards (IAS) was not verified during the survey. The answer depends on the expert knowledge of the respondent. Some results presented in this paper seem overestimated. It could be caused by the wrong answer during the interview. This paper because of its page limitations has not studied the cross dependencies. On the other hand it is questionable if the sample size enables the analysis of the cross dependencies based on statistical tools.

6. CONCLUSION

The paper's analysis described the dependencies between using and not using International Accounting Standards (IAS) and the selected variables. It showed that there were significant differences among countries and regions in Central and Eastern Europe. These differences are caused by many factors. It is difficult to discover all of them because of country heterogeneity. Some differences are based on the legal framework, others on the connection with abroad and market liquidity. Its influence has also history and quality of institutions. Knowledge of the conditions of all countries is always limited. The aim of this paper was not to find explanations but just describe the situation and selected dependencies. Second dependency was based on the main area of enterprise economic activity. The economic activity itself is probably not the trigger for using or not using International Accounting Standards (IAS). The explanations could be based on the existing regulation in the affected industry branch, publicly traded shares in some branches or foreign ownership. On the other hand the enterprises differ also in the size and it is usual because of needed property and traded volume that the enterprises in some industry branches are larger than in other branches. This shifts us to the dependency on the enterprise size. The data sample confirmed that larger enterprises used IAS more than smaller enterprises. It does not matter if the enterprise size was expressed by the number

of the full-time employees or by the annual turnover in USD. The data sample confirmed also the dependency on foreign operations or foreign ownerships. The enterprises which had foreign activities or which were owned or partly owned by the foreign capital used International Accounting Standards (IAS) twice more than the rest of the sample. This paper provided the description. The deeper analysis in the case of the countries or the area of activity could be an issue of further research. Extremely interesting would be a time comparison. The used data sample comes from 1999. We are nowadays almost 20 years further. There has to be development which differs among the selected countries. This research idea has its limitations done by the data availability. Only institutions as World Bank or European Commission are able to conduct a research of this kind of scale.

BIBLIOGRAPHY

Ball, R. (2006). International Financial Reporting Standards (IFRS): pros and cons for investors. *Accounting and business research*, 36(sup1), 5–27. Retrieved from: https://s3.amazonaws.com/academia.edu.documents/30499203/005-028.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1536479366&Signature=LjvWWJnTxM6a4GO51AM6StmSu7M%3D&response-content-disposition=inline%3B%20filename%3DInternational_Financial_Reporting_Standa.pdf

Carmona, S. & Trombetta, M. (2008). On the global acceptance of IAS/IFRS accounting standards: Thelogic and implications of the principles-based system. *Journal of Accounting and Public Policy*, *27*(6), 455-461. doi: 10.1016/j.jaccpubpol.2008.09.003.

Choi, F.D.S. & Meek, G.K. (2005). *International accounting*. UpperSaddle River, NJ: PrenticeHall.

Christensen, H. B., Lee, E., Walker, M., &Zeng, C. (2015). Incentives or standards: What determines accounting quality changes around IFRS adoption?. *European Accounting Review*, *24*(1), 31–61. doi:10.1080/09638180.2015.1009144.

Daske, H. (2006). Economic Benefits of Adopting IFRS or US-GAAP–Have the Expected Cost of Equity Capital Really Decreased?. *Journal of Business Finance & Accounting*, *33*(3–4), 329–373. doi:10.1111/j.1468-5957.2006.00611.x.

Eilifsen, A. (1996). The relationship between accounting and taxation in Norway. *European Accounting Review*, *5*(sup1), 835–844. doi:10.1080/09638189600000053.

European Bank for Reconstruction and Development (1999).World Bank Business Environment and Enterprise Performance Survey. Retrieved from: https://web.archive.org/web/20121029104133/http://www.ebrd.com:80/pages/research/economics/data/beeps/beeps99.shtml

Flower, J. (2004). *European Financial Reporting*. London, UK: PalgraveMacmillan.

Haller, A. (2002). Financial accounting developments in the European Union: past events and future prospects. *European Accounting Review*, *11*(1), 153–190. doi: 10.1080/09638180220124770.

Holečková, J. (1996). Relationship between accounting and taxation in the Czech Republic. *European Accounting Review*, *5*(sup1), 859-869. doi:10.1080/09638189600000055.

International Accounting Standards Board (IASB). (n.d.). Retrieved from: https://www.iasplus.com/en/resources/ifrsf/iasb-ifrs-ic/iasb

Jermakowicz, E.K. & Gornik-Tomaszewski, S. (2006). Implementing IFRS from the perspective of EU publicly traded companies. *Journal of international accounting, auditing and taxation*, 15(2), 170-196. doi:10.1016/j.intaccaudtax.2006.08.003.

Jindřichovská, I. & Kubíčková, D. (2016). The Change in Management Accounting in the Czech Republic from institutional and contingency perspectives. In T. Loster & T. Pavelka (Eds.). 10th International Days of Statistics and Economics (pp. 745–754). Prague, Czech Republic: Melandrium.

Lamb, M., Nobes, C. & Roberts, A. (1998). International variations in the connections between tax and financial reporting. *Accounting and Business Research*, *28*(3), 173–188.

Larson, R. K. & Street, D. L. (2004). Convergence with IFRS in an expanding Europe: progress and obstacles identified by large accounting firms' survey. *Journal of international accounting, auditing and taxation*, *13*(2), 89–119. doi:10.1016/j.intaccaudtax.2004.09.002.

Schipper, K. (2003). Principles-based accounting standards. *Accounting horizons*, *17*(1), 61–72. doi: 10.2308/acch.2003.17.1.61.

Strouhal, J. & Bonaci, C.G. (2014). Facing Current Trends in Accounting Harmonization: on Case of Czech Professional Accountants. In J. Alver (Ed.). *International Conference on Accounting, Auditing, and Taxation (ICAAT 2014)* (pp. 315-323). Tallin, Estonia: Tallinn UnivTechnol. Dept Accounting.

Woolfe, J. (2004). New EU members face accounts struggle. *Accountancy (8).*

APPLICATION OF IFRS 15 REVENUES FROM CONTRACTS WITH CUSTOMERS IN THE COMPANY IN THE CZECH REPUBLIC

Marian VDOVIAK, Marta STÁROVÁ, Enikő LÖRINCZOV, Hana VOSTROVSKÁ
Czech University of Life Sciences, Prague, Czech Republic
Marian_vdoviak@centrum.cz, starovam@pef.czu.cz

Abstract
The paper deals with the effects of implementing the new international accounting standard IFRS 15 in a telecommunication company operating in the Czech Republic. It has been proved that the implementation of this new standard had a significant impact on the company. The preparation of the implementation project was an important part of the process which proved to be considerably time consuming and financially demanding. The case study includes a typical area of the given industry – discounts on goods (hardware) and services. The assessment of the impacts is based on the comparison of the previous situation – earlier revenue recognition -presented in the financial statements and a simulated influence of a new standard on these financial statements. The results showed the change in the revenues structure, and while adhering to ceteris paribus principle, an increase of revenues by 2% and increase of the net comprehensive income by 11% in the first year of applying IFRS 15. At the same time, a new item "contract assets" was introduced in the balancesheet as a part of non-current assets. The influence of the new standard in the following years will depend on several factors, such as the level of the provided discount and on the amount of revenues for goods and services and their further development.

Keywords: *contracts with customers, goods, recognition, revenue, discount, services*

1. INTRODUCTION

Financial statements should provide a true and fair view of the financial position of a given entity at a certain date, of the financial performance for a certain period and about the changes during time. Compliance with the rules included in the instruments of accounting regulation (decrees, standards) should provide the fulfilment of this principle. Providing reliable information is the objective of the universal accounting frameworks (systems). International Financial Reporting Standards (hereinafter referred to as IFRS) is one of the generally accepted, universally valid and transparent accounting guidelines (OZ & Yelkenci, 2018; Dvořáková, 2017; Hinke, 2013). The application of universal accounting systems ensures the comparability of information included in the financial statements (IFRS Foundation, 2018)."Globalization and development of capital markets, including the stock exchange, are significant factors which influence the theory and practice of accounting, as well as the desire to unify financial statements on a global scale" (Bauer & Toborek-Mazur, 2014, p. 8). Schoeler (2017, p. 257) finds out "very interesting that the EU apparently is succeeding in this process of trying to increase comparability of financial statements information within the EU as part of common market. "Comparability of information in financial statements is absolutely vital for the users of these statements. And moreover, studies by Brochet, Jagolinzer, & Riedl (2013), Byard, Li, & Yu (2011), DeFond, Hu, Hung, & Li, 2011 & Tan, Wang, & Welker (2011) document some positive consequences to the equity markets associated with the introduction of IFRS – such as increased market liquidity, increased inflow of foreign investment, improvements in analyst forecast accuracy, and reduced insider information asymmetry. Lima, V. S, Lima, G. A. S. F. & Gotti (2018, p. 77) came to the conclusion "that economic benefits do not necessarily flow from the publication of financial reports in IFRS but, rather, depend on how earnestly firms adopt the recommended disclosure practices." These conclusions underline the importance of the article topic.

The Czech Republic as a member state of the European Union (EU) is bound to implement its directives, therefore the publicly traded companies listed on the EU markets who operates in the Czech Republic are required to prepare their individual and consolidated financial statements in

compliance with the international accounting standards (IFRS). This requirement is integrated in the accounting act (Accounting Act, 1991 as amended, §19a, § 23a). Other accounting entities should adhere to the national legal frame of accounting and can choose to apply IFRS voluntarily. However, all accounting entities should calculate their tax base without the influence of IFRS (Income Tax Act, 1992, § 23). The majority of national accounting systems are closely intertwined with the national tax systems and that is one of the reasons why compromises arise in the process of accounting harmonization.

The Czech national accounting regulations are getting gradually more and more closer to the most widespread instrument of international accounting harmonization which is IFRS. This is evidenced by the relatively extensive amendment of the Accounting Act valid from January 1st, 2016. However, it is still not in full compliance with this instrument of accounting regulation. This concerns also the area this paper is dealing with – the recognition of revenues.

The main aim of this paper is to assess the implementation of the standard IFRS 15 – *Revenues from Contracts with Customer*s (hereinafter referred to as IFRS 15), to show the necessity of a complex and timely preparation for the standard adaption and to illustrate the influence of these changes on the reported items of a telecommunication company operating in the Czech Republic. It is assumed that the new standard IFRS 15 will have a significant influence on the telecommunication industry.

The partial aim of the paper is to demonstrate the complex issue of the new standard IFRS 15 which is obligatory from January 1st, 2018 and to provide a basic theoretical background about its principles and methods and to demonstrate its innovation compared to the previous regulation in this area. To achieve the main aim, a simulated situation will be demonstrated with examples typical for the telecommunication industry. The influence of changes on the comprehensive income of the given company will be calculated and compared to the original situation which complied with the regulations valid till December 12, 2017 together with the impact on the items in the statement of financial position as the case may be balance sheet.

2. METHODOLOGY

The motivation to address the topic of this paper was to illustrate the great changes in the accounting methods related to the adaptation of the new accounting standard IFRS 15 and to present part of the results of a diploma thesis of the first author defended in 2018. The method of desk research was applied to formulate the Introduction and to explain the basic principles and methods of the new standard with the focus on its innovative approach. Critical analysis was applied to assess foreign literature sources together with the sources from Czech authors. The methods of synthesis and comparison of the partial results were used to discuss the given topic.

To be able to identify the impacts of adapting IFRS 15 in a certain company, careful preparation is required. This is the reason to include the simplified necessary steps which precede the relevant quantification of the actual impacts in this paper. The main aim of the paper will be achieved by using a simulated situation in a chosen company. The company will not be named in the paper, the name “Company” will be used hereinafter. The Company is a part of a consolidated group, its legal form is joint-stock company and its parent company resides abroad. The main business activity of the Company is to operate a public and fixed mobile telecommunication network and to provide mobile and fixed telecommunication services.

The main specifics of this industry are to provide discounts on goods (hardware) and services, eventually providing goods for a symbolic price which was the reason for choosing this industry to demonstrate the influence of changes. Data included in the published financial statements of the Company from 2016 is the basis used for demonstrating the influence of the adaptation of the new standard. The influence of the changes in the comprehensive income and the change in percentages is calculated after following the steps described in the preparatory stage of the implementation project (Chapter 4.1), applying the principles of IFRS 15 in form of the newly designed Five step model

(Chapter 3) and in comparison with the original data which are presented in the financial statements of the Company for the year 2016. At the same time the impacts on some presented items in the balance sheet are described. The method of induction is used for formulating the conclusions.

3. REVENUE RECOGNITION ACCORDING TO IFRS

IFRS 15 is a new standard which amends revenues. This standard was issued in 2014 and is effective from January 1, 2018 with a possible early application (IFRS Foundation, 2018; Delloite, 2017). The reason for creating a new standard was the need to unify the approaches in revenue reporting from standards IAS 11 Construction Contracts and IAS 18 Revenues and the relevant interpretations IFRIC 13, 15, 18 a SIC 31 (hereinafter referred to as earlier revenue recognition standards) and, as a result of this, to increase comparability of revenues recognized by different accounting units (Dvořáková, 2015).

The core principle of IFRS 15 is that an entity will recognise revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services (IFRS Foundation, 2018). Dvořáková (2015) emphases that, the moment for revenue recognition is the transfer of control over the delivered goods or services to a customer. IFRS 15 core principle is delivered in a five-step model Framework (IFRS Foundation, 2018; BDO, 2016; Dvořáková, 2017; Dvořáková, 2015; EY. 2014):

- Identify the contract(s) with a customer
- Identify the performance obligations in the contract
- Determine the transaction price
- Allocate the transaction price to the performance obligations in the contract
- Recognise revenue when (or as) the entity satisfies a performance obligation. (Deloitte, 2017)

The practical application of the five-step model is demonstrated in the following chapter.

By applying IFRS 15, revenues recognition rules according to IFRS are unified and compatible with another significant instrument of international accounting harmonization US GAAP (Dvořáková, 2015; EY, 2014). Earlier revenue recognition standards matched in some principles, but contradicted in others, e.g. recognition of revenues from services was included in IAS 11 and IAS 18 – the creators of the financial statements had to choose the most relevant approach and appropriately explain their decisions. These are chosen differences between IFRS 15 and earlier revenue recognition standards named by Mnp (2017, p. 6):

- “The revenue recognition model has changed from being focused on the transfer of the risks and rewards of ownership (IAS 18) to being based on the transfer of control (IFRS 15).”
- “IFRS 15 is more prescriptive than the existing revenue guidance and introduces more complexities.”
- “IFRS 15 contains more detailed guidance regarding the provision of distinct goods or services. Therefore, goods or services that were previously bundled under IAS 18 may now be distinct and accounted for as separate performance obligations under IFRS 15.”

By Almohashi (2017, p. 1) opinion, “under the new recognition standard, the focus shifts from the income statement to the balance sheet.” Entities will need to make certain changes to their balance sheets: “moving an asset out of the balance sheet, or satisfying liability to recognize revenue, would require the entity to create new assets and liability accounts. “Standard and its appendixes provide more detailed procedures that will facilitate its application to entities. IFRS 15 and its supporting materials provide more detailed procedures that will facilitate its application to entities (IFRS Foundation, 2018).

4. APPLICATION OF IFRS 15 IN THE GIVEN COMPANY

To meet the obligations resulting from the new standard IFRS 15,companies had to prepare for it far earlier than from January 1st, 2018 (when the standard became effective). In the chosen Company, the preparatory implementation project of IFRS 15 started during the year 2014.

4.1 Implementation project of the standard IFRS 15 – preparatory stage

The process of implementation of the standard IFRS 15 in the Company was divided into three phases and each of the phase resulted in a processed relevant document and actual solutions. The phases followed in the Company when adapting IFRS 15 were:

1. Impact study
2. Decision-making of the IT solution
3. IT implementation (Corporation, 2017; Vdoviak, 2018).

As it can be seen from the following paragraphs the process of IFRS 15 implementation is time consuming and demanding from the point of additional workload and financial resources.

4.1.1 Impact study

The initial phases of the implementation process were supported mainly by the department of accounting methodology and reporting in cooperating with the individual owners of business operations. All revenues occurred in the Company were focused. Each category of revenues was analysed in detail and assessed whether the new standard would have an effect in the given category. Revenues were divided into the following categories according to the business areas: mobile private services, mobile business services, fixed private services, fixed business services and information and communication technology services for companies (ICT). Each business area was divided into individual portfolio of: tariff services with a subsidised hardware, tariff services with a subsidised hardware on instalment payment, prepaid services, prepaid services with a subsidised hardware. At each portfolio (prepaid serviced excluded) are two possible situations: services with a commitment or services without commitment. The most frequent type of commitment is 24 month (Corporation, 2017; Vdoviak, 2018).

Another dimension of this phase of the project was the impact analysis of the standard implementation on the individual categories of revenues. This testing was carried out by a so called master template impact study. The horizontal dimension of this template was composed from the individual categories of revenues, directly divided into individual business areas and portfolios. The vertical dimension was composed from questions that directly resulted from the new standard and have a clear impact on the revenue recognition. Examples of these questions are: Is there a discount provided on the services/hardware in that area? Are there one-off fees charged regarding the establishment of a service? Does the contract include an explicit or implicit instrument of financing, which overlap one year? Is it possible to end the contract earlier before the minimal time of commitment expires? Does the contract include a customer loyalty program? All the questions aimed to identify any influence which should be taken into account according to the new standard.

Based on the analysis of the impact study, adjustment functions were defined. The most important areas with the highest impact on the revenue recognition were identified as the following:

- *Subsidised hardware/services* – the difference between the standalone selling price of the hardware/service and the price for which the hardware/service is sold, is recognized as a discount on the hardware/service, which is at the time of signing the contract allocated to the whole time period of the duration of the contract
- *Hardware budget* –by signing the contract for services, the customer receives benefit for future purchase of hardware and it is the customer´s decision when he uses it. The revenue from the discount on the hardware is not recognized at the time of signing the contract, but at the time, when the actual use of this credit takes place.
- *One-off payments* – generally, they are paid at the beginning of the contract, for example installation fees, etc. This fee cannot be an individual performance obligation, it has to be an

integral part of the contract. In this case, the revenue from the one-off fee is recognized gradually during the duration of the contract (Corporation 2017; Vdoviak, 2018)

The last step of the first phase is to create a document – accounting evaluation. In this document the individual categories of revenues are described in detail up to the level individual products and the impact of the new standard at revenue recognition. The document describes the impacts in compliance with the principles of the five-step model of revenue recognition.

The application of the IFRS 15can be carried out in two ways. The Company may choose the “contract by contract approach” where each individual signed contract is evaluated separately. The impact of the new standard is then applied individually for each of the contracts. This approach has a clear advantage by providing accurate and undistorted information. The essential disadvantage of this approach is in the significant administrative burden in case of large quantity of contracts and this unable bigger companies to take this approach. The other possible way is the “portfolio approach” where the basis of applying the new standard is the average value valid for the given portfolio. This approach is favourable for bigger companies, however, the disadvantage is the smaller or higher degree of inaccuracy. The given Company chose the “portfolio approach” for the application of the new standard with the exception of the business area ICT where it chose the “contract by contract approach”. The reason for it was the highly specific conditions of the ICT contracts – it required to approach them separately. In this case the “portfolio approach” would bring a high degree of inaccuracy and the data would not give relevant information to the users (Corporation, 2017; Vdoviak, 2018).

4.1.2 Decision-making of the IT solution

The most important thing in this part of the project was to evaluate the sources from which the required data could be used and to assess their relevancy.

1. *Business requirements*– it includes the detailed description of the individual portfolios and the adjustment functions, which are applicable to the particular portfolio, the key characteristics of the portfolio and sources of data. The most important activity in this phase is to evaluate the relevancy of the sources and data. In most cases the invoice system which contained most of the required data was used. Materiality was calculated for the assessment of the influence of the particular adjustment functions on the individual portfolios. The most important key factors that influence the correct settings of the adjustment functions are: one-off fees, transaction price of the service, the individual selling price of the service, transaction price of the hardware, individual selling price of the hardware and the allocation factor. The allocation factor is used for the allocation of the influence of the adjusting function among the particular part of performance obligation (e.g. discounts on hardware and a related service).
2. *Technical specifications* – the central solution at the level of the parent company requires to calculate all the adjusting functions for the individual portfolios. This calculation is subsequently recorded into the local accounting system. With regard to the different invoice systems used by the Company (as a consequence of the various mergers in the past) it was necessary to define and specify a uniform format of data output. Between the local output and the central solution there is an interface which requires a proper setting of the format on the side of the local output and on the side of central input (Corporation, 2017; Vdoviak, 2018).

4.1.3 IT implementation phase

The central solution includes a calculation of the individual adjustment functions for each of the business area and each of the portfolio. The calculated adjustment functions are subsequently recorded in the local accounting systems in the individual local companies. The testing of the proper setting was carried out in two steps. The first step was the user acceptance test (UAT) and the second one was the correction of the errors. Practical business applications are the output from this phase. Another important part of this phase is the internal control system (ICS). ICS is a system which monitors every process in the Company and controls its relevancy and proper setting. (Corporation, 2017; Vdoviak, 2018).

4.2 The impact of adopting IFRS 15 in the Company (case study)

To demonstrate the influence of the implementation of the new standard IFRS 15 for revenue recognition a case study is used from the experiences of the chosen telecommunication Company. For the telecommunication industry is specific to use a motivation technique for their customers to use their services by offering hardware at a discounted price. The hardware delivered to customers is sold for a lower price than its standalone selling price. The purchase of a hardware, typically a mobile phone, but also a modem or set top box applied for receiving television signal distributed through internet, is, in most cases, financially demanding, which is the reason why subsidising goods is a suitable way to attract new customers or keep the existing ones. The chosen Company also uses this marketing policy.

The Company offers contracts for 12, 24 or 36 months. The experience of the Company proved that 99% of the customers choose the contract for 24 months (Corporation, 2017). For the calculation, the financial statements of the year 2016 are used, assuming all the discounts were included. It will be necessary to simulate the results in a model where revenues from hardware and services would be recognized while the discounts would not have been applied and revenues would have been recognized at an standalone selling price. To demonstrate the influence of discount ceteris paribus principle is applied. The change is related only to one parameter. Up until the end of 2017, the Company applied the standard IAS 18 and the results shown in Table 1 are calculated by following that standard.

Table 1. Statement of Comprehensive Income – revenues (discounts) according to IAS 18

	2016 [mio CZK]
Revenues	26,227
Other operating income	1,188
Cost of goods sold	-8,711
Personal expenses	-3,111
Depreciation	-4,727
Other operating expenses	-4,863
Operating income	**6,002**
Financial gains	86
Financial losses	-110
Income before taxation	**5,979**
Income tax	-1,259
Net income	**4,720**
Other comprehensive income	0
Comprehensive income	**4,720**

Source: Own processing based on Ministry of Justice (2018, p. 79)

In the case of selling goods related to providing mobile telecommunication services, according to IAS 18, the revenues are recognized at the transaction price and at the moment, when the sale took place. To evaluate the impacts of the new standard it is necessary to divide the revenues in a detail, e.g.. divide them into categories according to the nature of the product or business activity and to the type of products and services, see Table 2.

Table 2. Revenues recognition according to IAS 18 in a detail

Revenues from sale of:	**2016 [mio CZK]**
Goods	2,135
Mobile telecommunication network services	17,849
Fixed telecommunication network services	4,969
IT services	1,274
Revenues	**26,227**

Source: Own processing based on Ministry of Justice (2018, p. 80)

For the purposes of calculating the impacts of adapting IFRS 15, the Company established the average discount applied for the sale of goods at 39%. This percentage expression includes goods which were sold both with commitment and no commitment and across the business activity and portfolios. It is an average discount, so the inaccuracy should not be material. The revenue recognized form the sale of goods in 2016 was 2,135 mio CZK. Following the key parameters this price is considered the transaction price. The standalone selling price would be the transaction price increased by 39%, which is 3,500 mil CZK after mathematical rounding.

The revenues from providing services are 24,092 mio CZK. Again, it's a key parameter, which is the "transaction price". The standalone selling price is at the same level as the transaction price. Internal information from the chosen Company revealed that discounts on the provided services are minimal compared to the overall revenues, therefore they are not taken into account for the further calculations, therefore the standalone selling price is equal to the transaction price. The methodical process of revenue recognition according to IFRS 15 is a new five-step model. Its application on the simulated situation of the Company is the following:

1. *Identification of the contracts with a customer*: The given Company has chosen the "portfolio approach" for the majority of its revenues (not the "contract by contract approach"). Contracts which are approved (signed) at a similar time for a similar performance obligation are aggregated and the new rules are applied to the aggregated contracts.
2. *Identification of the performance obligations in the contract:* Approved contracts on providing telecommunication services including a subsidised hardware and a commitment brings a benefit to the customer in a highly related and dependent manner. The discount on the hardware is provided because the customer signed the contract otherwise the discount would not be provided. Therefore it is necessary to allocate this discount among the particular parts of the contract and recognize it gradually during the time of duration of the contract.
3. *Determination of the transaction price:* The model situation is based on the assumption that the customer will use the service in duration of 24 months. The financial statements reveal that the annual revenue from the sale of services is 24,092 mio CZK. The total price of the transaction for two years is therefore 2 x 24,092 mio CZK = 48,184 mio CZK. The transaction price of the sale of the goods is 2,135 mio CZK. The total price of the transaction is therefore 50,319 mio CZK.
4. *Allocation of the transaction price to the performance obligations in the contrac*t: The discount which is provided to the customer is provided only if the customer commits to using the service and paying for it for the duration of the time, therefore the discount is allocated between the goods and the services. The discount which is allocated to the service is necessary to recognize for the duration of the contract which is two years in this case. The allocation of the total transaction price to the particular performance obligations during the duration of the contract is shown in Table 3.

Table 3. Allocation of the transaction price and discount to the particular performance obligations

Revenues from [mio CZK]	Transaction price				Standalone selling prices		Allocation factor	Relative standalone selling prices	
	One-off payments	Year 2016	Years of contract	∑	Annual	∑		Annual	∑
Services		24,092	2	48,184	24,092	48,184	0.9736	23,456	46,911
Goods	2,135			2,135		3,500	0.9736		3,408
Total	**-**	**-**		**50,319**	**-**	**51,684**	**-**	**-**	**50,319**

Source: Own processing based on Vdoviak (2018, p. 82)

The calculation of the allocation rate is calculated in Table 3. By using this rate it is possible to allocate the discount to various performance obligations. Table 3 shows that the discount which was allocated mainly to the sale of goods according to IAS 18 is now on the contrary allocated mostly to the revenues from the sale of services.

5. *Revenue recognition*: On the basis of results in Table 3 it is possible to calculate the recognized revenue according to the new standard and the related items of the financial statements, see Table 4.

Table 4. Effects of revenues recognition according to IFRS 15

[mio CZK]-	**2016**		**2017**	**Total**
Statement of comprehensive income				
Revenues from goods	3,408			3,408
Revenues from services		23,456	23,456	46,911
Total revenues	3,408	23,456	23,456	50,319
Cumulative revenues	3,408	26,863	50,319	
Balance sheet				
Contract assets	1,273	-636	-636	0
Cumulative contract assets	1,273	636	0	
Contract liabilities	0	0	0	0
Cumulative contract liabilities	0	0	0	

Source: Own processing based on Vdoviak (2018, p. 83)

Invoicing is based on the realized transactions and invoiced value is different from the value of recognized revenues. The invoice processing of the performance obligations according to the transaction price is shown in Table 5. (Invoicing process has not been changed by IFRS 15 implementation).

Table 5. The invoice processing

[mio CZK]-	**2016**		**2017**	**Total**
Goods				
Cash / Receivables	2,135			2,135
Revenues from services	-2,135			-2,135
Services				
Cash / Receivables		24,092	24,092	48,184
Revenues from services		-24,092	-24,092	-48,184
Total				
Total Cash / Receivables	2,135	24,092	24,092	50,319
Cumulative Cash / Receivables	2,135	26,227	50,319	

Source: Own processing based on Vdoviak (2018, p. 83)

It is evident from the results that the total amount of revenues for two years (see Table 4) is equal to the amount invoiced for the same time duration (see Table 5). However, there is a shift in time when the discount is recognized; in the first year of the contract duration the revenues arise and in the second year the revenues decrease.

Summary of the impacts in the case study

The new allocation of the discount described above will have an impact on the revenues recognized in the first year of application of IFRS 15, and it's an increase by 636 mio CZK (from 26,227 mio CZK to 26,863 mio CZK). The increase is 2%. As a consequence of the increased revenues in the first year the income tax increased as well by about 121 mio CZK (by calculating with the current rate of the income tax in the Czech Republic which is 19%). The deferred tax calculation was not taken into account. The impact on the comprehensive income after tax is 515 mio CZK. By applying the principle of ceteris paribus, the impact on the comprehensive income is 11% (Vdoviak, 2018). The impact on the items of the balance sheet in the given case is demonstrated in a simplified manner in Table 6.

Table 6. Influence of IFRS 15 on balance sheet

Assets		**Equity**	
Contract assets	636	Comprehensive income (Net income)	515
		Liabilities Income tax	121
Total	**636**		**636**

Source: Own processing based on Vdoviak (2018)

The increase of revenues related to the implementation of the new standard will have an impact on the total increased assets. It is presented in the item "contract assets. "A contract asset is in IFRS 15 defined as "an entity's right to consideration in exchange for goods or services that the entity has transferred to a customer". "If an entity performs by transferring goods or services to a customer before the customer pays consideration or before payment is due, the entity shall present the contract as a contract asset, excluding any amounts presented as a receivable." (IFRS Foundation, 2018, par. 107).

On the equity and liabilities side there will be an increase of an income tax liability, generally presented in the category "Trade and other liabilities" and there will be an increase of the equity in retained earnings (net comprehensive income) of 515 mio CZK.

The results show that the implementation of the new standard IFRS 15 will influence certain ratios of financial analysis. The demonstration of it is beyond the limitations of the given case study and it is not a part of this paper.

There is no wide discussion in international journals about the effects of IFRS 15 application in selected specific companies. Yeaton (2015) predicts that certain industries, such as real estate and telecommunications, may experience the most significant changes. Trabelsi (2018) proves that the application of IFRS 15 on real estate companies in Dubai has a double effect: in most contracts with customers, revenue is recognized over the time and contract costs are more likely capitalized rather than expensed. The company Ericson (2018) publishes information that the transition to IFRS 15 reduced its equity by SEK 2.6 billion on January 1, 2018.in comparison with the previous year 2017, and in addition they explain that the new standard impacts the timing of recognition of revenue and costs, while having no impact on cash flow. Information about possible impacts of the application of IFRS 15 in companies should be found in the notes to their financial statements for the year 2017.

5. CONCLUSIONS

The implementation of the new standard IFRS 15 brings a time consuming and financially demanding challenge for the companies involved. To meet all the requirements of this standard a very thoughtful preparation for the implementation is needed which include the impact study, the decision making for IT solutions and the IT implementation itself where adjusting functions need to be defined and applied. A model situation specific for the telecommunication industry was simulated in the case study where discount is applied for the sale of goods in the bundle with services. The impact on the comprehensive income influenced by the adaption of the IFRS 15 was calculated and the effects on the statement of comprehensive income and the balance sheet are indicated. The results of the research show that implementing the new standard IFRS 15 at its first year adapting will have a significant impact on the financial statements of the given Company. The discount which was previously allocated mainly to the sale of goods according to the standard IAS 18 is now allocated mostly to the revenues arising from the sale of services when applying the new standard IFRS 15. As the simulated situation show (without the deferred tax calculation), the total revenues increased by 2% and the comprehensive income by 11% at the first year of adapting the IFRS 15. In the following years the impact will depend on several factors such as the level of the provided discount and the amount of revenues from goods and services and their further development. One of the limitations of this paper is related to the omission of the deferred tax calculation which can be however considered as insignificant in the model situation. Another limitation is the fact that the research findings are based on the model situation derived from the chosen Company´s previous financial statements as the actual annual financial reports for the year 2018 (from which IFRS 15 is obligatory) are not available yet. On the other hand, to predict the effect of the application of the new standard is the purpose of this paper. The lack of other papers with a similar topic to compare the results with is considered a limitation as well. We have not found similar papers in journals indexed in databases Web of Science and Scopus concerning the effects of IFRS 15 application in an actual telecommunication company, only the effects on real estate companies in Dubai. For the future research, it would be interesting to monitor the effects of IFRS 15 application in practise to show the consequences and impact on the telecommunication and other industries. The findings of the future research will not depend on the region or country, where the chosen entities operate because IFRS is universal accounting regulation not influenced by the national accounting system.

Acknowledgement

This paper follows the project of the Internal Grant Agency (IGA) of the Czech University of Life Sciences in Prague, Faculty of Economics and Management No 2017/1012 "Proposal for the Economic Data Collection for Modeling the Economic-Information System in the Czech Republic Forestry".

BIBLIOGRAPHY

Accounting Act. (1991) Act No. 563/1991 Coll., on Accounting, as amended. Czech Republic. (Zákon č. 563/1991 Sb., o účetnictví, ve znění pozdějších předpisů.)

Almohashi, A. H. (2017). *3 Major Differences between IFRS 15 and the old revenue recognition standards* [online]. IMA – The association of Accountants and Financial Professionals in Business. [Accessed: 2018-08-10]. Available: https://linkup.imanet.org/blogs/ali-hussain-al-mohashi/2017/04/25/3-major-differences-between-ifrs-15-and-the-old-revenue-recognition-standards

Bauer, K. &Toborek-Mazur, J. (2014).*Informative Role of Consolidated Financial Statements Drawn up in accordance with IFRS: The Case of Companies Bankruptcy-Restructuring Proceedings in*

Poland[online]. The 2nd International Scientific Conference IFRS: Global Rules and Local Use, Oct. 10, 2014, Prague [Accessed: 2018-08-10]. Available: http://car.aauni.edu/wp-content/uploads/IRFS-Proceedings_2014-Published.pdf

BDO. (2016). *IFRS in Practice 2017. IFRS 15 Revenue from contracts with customers* [online]. © BDO. [Accessed: 2018-08-11] Available: https://www.bdo.global/getattachment/Services/Audit-Assurance/IFRS/IFRS-in-Practice/Applying-IFRS-9-to-Related-Company-Loans-2018.pdf.aspx?lang=en-GB

Brochet, F., Jagolinzer, A. D., &Riedl, E. J. (2013).Mandatory IFRS adoption and financial statement comparability. *Contemporary Accounting Research*, 30(4), 1373–1400.

Byard, D., Li, Y., & Yu, Y. (2011).The effect of mandatory IFRS adoption on financial analysts' information environment. *Journal of Accounting Research*, 49(1), 69–96.

Corporation. (2017). Internal materials of a the given telecommunication company. Prague. Czech Republic.

DeFond, M., Hu, X., Hung, M., & Li, S. (2011). The impact of IFRS adoption on foreign mutual fund ownership: The role of comparability. Journal of Accounting and Economics, 51(3), 240– 258.

Deloitte (2017). *IFRS 15 — Revenue from Contracts with Customers*[online].© 2017 Deloitte Global Services Limited. [Accessed: 2018-08-12]. Available: https://www.iasplus.com/en/standards/ifrs/ifrs15

Dvořáková, D. (2015). Výnosy ze smluv se zákazníky. *Český finanční a účetní časopis,* 10 (3) 80–96.

Dvořáková, D. (2017). *Finanční účetnictví a výkaznictví podle mezinárodních standardů IFRS.* BizBooks, 5th Edition, Brno, pg. 368.

Ericson (2017).*Ericson financial information restated for IFRS 15* [online].Ericson [Accessed: 2018-09-07] Available: https://www.ericsson.com/en/press-releases/2018/3/ericsson-financial-information-restated-for-ifrs-15

EY. (2014) *IFRS 15: The new revenue recognition standard* [online] © 2014 Ernst and young [Accessed: 2018-08-11]. Available: https://www.ey.com/Publication/vwLUAssets/IFRS_15_The_new_revenue_recognition_standard/%24FILE/IFRS15_low.pdf

HINKE, J. (2013). *IAS/IFRS a vykázání finanční pozice podniku.* Alfa Nakladatelství, 1st Edition, Praha, pg. 142.

IFRS Foundation. (2018). *IFRS 15 Revenue from Contracts with Customers* [online]. London: © IFRS Foundation. [Accessed: 2018-08-12] Available: http://www.ifrs.org/issued-standards/list-of-standards/ifrs-15-revenue-from-contracts-with-customers/

Income Tax Act. (1992). Act No, 586/1992 Coll. On Income Taxes as amended. Czech Republic. (Zákon č. 586/1992 Sb. O daních z příjmů ve znění pozdějích předpisů.)

Lima, V. S., Lima, G. A. S. F. & Gotti, G. (2018). Effects of the Adoption of IFRS on the Credit Market: Evidence from Brazil. *International Journal of Accounting.* 53(2), 77–101. https://doi.org/10.1016/j.intacc.2018.04.001

Ministry of justice. (2018). The financial statements of the telecommunication company published on a public portal [online]. Justice.cz. Ministry of Justice of the Czech Republic. [Accessed: 2018-08-10] Available at: https://or.justice.cz/ias/ui/rejstrik-$firma?nazev=Zadejte+n%c3%a1zev+subjektu+nebo+I%c4%8cO

Mnp. (2017). *IFRS 15 Revenue from Contracts with Customers Guide* [online]. MNP LLP. [Accessed: 2018-08-10]. Available: https://www.mnp.ca/SiteAssets/media/PDFs/APSG/2017-02-ifrs-15-Revenue-from-Contracts-with-Customers.pdf

OZ, I. O. & Yelkenci, T. (2018). Examination of real and accrual earnings management: A cross-country analysis of legal origin under IFRS. *International Review of Financial Analysis.*58, 24–37. https://doi.org/10.1016/j.irfa.2018.04.003

Vdoviak M. (2018). *Assessment of Implementation of IFRS 15 and IFRS 16 in Selected Company.* (Zhodnocení zavedení standardů IFRS 15 a IFRS 16 ve vybrané společnosti.) Prague. Diploma Thesis. Czech University of Life Sciences in Prague. Faculty of Economics and Management. Department of Trade and Finances.

Schoeler, F. (2017).*Accounting Information Comparability Accross the Countires Prescribing IFRS.* [online] Anglo-American University in Prague. The 5th International Scientific Conference IFRS: Global Rules and Local Use, October 20, 2017, Prague. [Accessed: 2018-08-10]. Available: http://car.aauni.edu/wp-content/uploads/Proceedings-from-the-AAU-Conference-IFRS-Prague-2017.pdf

Tan, H., Wang, S., & Welker, M. (2011). *Analyst following and forecast accuracy after mandated IFRS adoptions.* Journal of Accounting Research, 49(5), 1307–1357.

Trabelsi, N. S. (2018). *IFRS 15 early adoption and accounting information: Case of real estate companies in Dubai.* Academy of Accounting and Financial Studies Journal 22(1).

Yeaton, K. (2015). A New World of Revenue Recognition: Revenue from Contracts with Customers. *The CPA Journal*. 85(7), 50–53.

OUTCOMES OF IFRS ADOPTION ON FINANCIAL REPORTING QUALITY: A REVIEW OF THE LITERATURE

Alexandra-Gabriela MARINA
Babes-Bolyai University, Cluj-Napoca, Romania
Lucian Blaga University, Sibiu, Romania
alexandra.marina@econ.ubbcluj.ro

Abstract
The International Accounting Standards Board (IASB) assume that financial reporting aims to deliver information about the financial position, performance and changes in financial position of an entity that is beneficial for users in making decisions. Based on these assumptions, this paper aims to provide a clear picture of empirical archival literature on how IFRS adoption affects financial reporting quality. The study is an effort trying to summarize the empirical evidence by chronological order in the literature about the outcomes of the IFRS adoption on financial reporting quality. Also, we focus on three factors around IFRS adoption (mandatory, voluntary and convergence) and we provide discussions of research design choices and issues researchers face when studying IFRS adoption consequences.

Keywords: *IFRS adoption, financial reporting quality, IFRS adoption outcomes*

1. INTRODUCTION

The free flow of international capital and the cross-border transactions have become the basis of modern economies with more than a third of financial transactions being made across borders. As a consequence, investors started looking for ways to invest outside of national borders. Also, companies have begun to look for ways to carry out cross-border operations, as evidenced by the emergence of subsidiaries in many countries.

The International Accounting Standards Board (IASB) introduced globally International Financial Reporting Standards (IFRS) in 2002 and advised countries around the world to embrace these accounting standards. IFRS provided a set of internationally recognized accounting standards, ensuring transparency by improving international comparability and the quality of financial information, enabling users of financial information to make informed economic decisions.

IFRS appeared because it was considered that the application of a standard set of standards would facilitate the comparison of the financial performance of companies in different countries (Jeanjean & Stolowy, 2008). According to IASB's mission, IFRS Standards aimed to bring transparency, accountability and efficiency to the global financial markets improving the quality of accounting standards (IASB, 2018). These benefits have been a subject of discussion and research for academics, practitioners and accounting regulators.

Standards consist of a comprehensive set of principles, which necessarily require consistent, comparable, reliable and relevant information, with great utility for investors and creditors, and generally for all those responsible for capital decisions. They are also necessary for the efficient functioning of a market economy because decisions on capital allocation are based on credible and understandable financial information (Panagiotis & Stergios, 2011).

The emergence of IFRS has led to a decrease in the complexity of financial statements, facilitating the work of a user of financial information to a great extent. The adoption of IFRS has been seen as a way of improving publication policies and accounting systems, thereby enhancing the integration of national markets into global markets in order to accelerate economic growth (Hope, Jin, & Kang, 2006).

An obstacle to cross-border activities has been the maintenance of its own set of national accounting standards, thereby increasing the costs and complexity of financial situations, hampering economic decision-making. Another obstacle in the decision-making process was the studying the

minutiae of national accounting standards because both the financial performance and the reported financial position were affected by the differences in the requirements of the standards as the reported amounts could be calculated on a different basis.

The purpose of this paper is to summarize the empirical evidence by chronological order in the literature about the outcomes of the IFRS adoption on financial reporting quality. In doing so, the paper focuses on three factors around IFRS adoption (mandatory, voluntary and convergence) providing a clear picture of empirical archival literature.

To identify relevant studies for this literature review, I have selected the following key words: IFRS adoption, accounting quality, mandatory IFRS adoption, voluntary IFRS adoption and convergence. These search terms were used in editorial databases, such as Elsevier, Springer, Wiley and Web of Science platform.

Many studies related to the IFRS adoption have been published in last years, which I shall consider in three groups. The first group includes studies analyzing the impact of the mandatory adoption of IFRS. The second group includes studies analyzing the impact of voluntary adoption of IFRS, while the thirds one refers to studies examining the effects of convergence.

2. LITERATURE REVIEW

2.1 Benefits and obstacles of IFRS adoption

The adoption of IFRS as a common international accounting framework presents many benefits, such as improving the quality of financial reporting, facilitating comparability between financial statements and increasing transparency.

Table 1. provides a list of the value-relevance studies on benefits and obstacles of adopting IFRS, summarizing the topic and the results for each of them.

Table 1. Value-relevance studies on benefits and obstacles of adopting IFRS

References	Topic	Result
Ball (2006)	Advantages and disadvantages of IFRS for investors	IFRS provides accurate and comprehensive information on the financial statements
Damant (2006)	Advantages and disadvantages of IFRS for investors – remarks	The enormous impact of adopting IFRS, due to increased comparability and transparency
Alali and Cao (2010)	Interpretations and implementations of IFRS as principle-based accounting standards	The credibility of standards is compromised if the standard setting process is political, culturally, economically and legally influenced.
Brown (2011)	Economic benefits of IFRS adoption	Eliminating trans frontier barriers, more accessible to compare financial situations, increased transparency
Sidik and Rahim (2012)	Benefits perceived by accountant practitioners	IFRS could improve the level of comparability of financial statements between companies, transparency
Zenghal and Mhedhabi (2012).	Association between the development of capital markets in emerging countries and the use of IFRS	The adoption of IFRS had significant and positive consequences for the development of the capital markets
Zeff (2007)	Cultural differences that could slow down the implementation of IFRS	Financial culture, accounting culture, auditing culture and regulatory culture
Cole et al.(2011)	Beliefs of auditors, analysts and other users	41% considered that the financial statements resulting from the application of IFRS contained comparable information

Source: Author

Ball (2006) concluded that IFRS provides accurate and comprehensive information on the financial statements. He also argued that adopting IFRS improves the comparability of financial statements across different countries, reducing international differences in accounting practice. Thus, improving financial quality is considered to be beneficial for users of accounting information, especially for investors, because the risk of opportunistic behavior of the listed companies' management would be significantly reduced to a minimum by the transparency of information and reflection of reality.

Damant (2006) considered that the impact of adopting IFRS would be enormous due to increased comparability and transparency so that no more mistakes will be made and much money will be saved, not investing in the wrong places and at the wrong prices.

Alali and Cao (2010) considered that the credibility of IFRS is compromised and comparability cannot be achieved if the standard setting process is political, culturally, economically and legally influenced.

Brown (2011) argued that the adoption of IFRS had important economic benefits, but their magnitude depends on many other things, such as the nature of the standards used before the adoption of IFRS, the presence of legal support for IFRS application, and the degree monitoring whether these are being respected or applied. Among the benefits mentioned in the study, we find: eliminating transfrontier barriers, more accessible to compare financial situations, increased transparency, all of which lead to increased market efficiency and lower capital cost.

Sidik and Rahim (2012) studied the benefits perceived by Malaysian accountant practitioners following the adoption of IFRS. Based on a survey of 159 respondents, they reported that the majority of respondents agreed that adopting IFRS could improve the level of comparability of financial statements between companies, transparency and, last but not least, the increase in foreign capital.

Zeghal and Mhedhabi (2012) conducted a study, analyzing the association between the development of capital markets in emerging countries and the use of IAS / IFRS. This study was conducted using multiple regression analysis on a sample of 38 developing countries that have accepted the implementation of IFRS. The results of the study revealed that the adoption of the standards had significant and positive consequences for the development of the capital markets. Another conclusion of the study was that the use of standards has led to the improvement of the quality of the financial statements provided by the listed companies and, at the same time, to the investors' motivation to invest.

In spite of the significant advantages presented above, the literature also presents a number of disadvantages and obstacles in the implementation of IFRS, because there are studies that contradict the above researchers, that comparability of financial statements is just an appearance, an illusion because national accounting rules and cultural diversity can cause differences in the application of IFRS.

Zeff (2007) studied the main cultural differences that could slow down the implementation of IFRS. Zeff's four cultural differences are business and financial culture, accounting culture, auditing culture and regulatory culture, specifying that they may vary from one country to another. The study outlines in a detailed manner some barriers to convergence, such as interpretation, language, terminology, political and barriers to profits adjustment.

- Interpretation barriers occur if national regulatory bodies issue their interpretations, which leads to a different application of standards from one country to another.
- Language barriers occur if English translations into local language give rise to specific problems, such as misunderstanding of new imported concepts. In this way, a traditional concept imported into another country can be challenging to understand even if it is translated with precision.
- Terminology barriers arise because terminology needs to be defined and interpreted uniformly, playing an essential role in convergence. When the interpretation of terms is different from one country to another, the convergence process is hampered and with it and the comparability of the information.
- Political barriers also make the convergence process difficult. For this reason, large companies, and take the example of banks, if they find that they cannot persuade the IASB in certain

respects to gain certain advantages, reorient and put pressure on other bodies such as the European Commission or the European Parliament.
- The last barrier, the one on adjusting profits, refers to the fact that the efficiency of the convergence process can be affected. Certain companies may adopt new profitability measures, leaving aside IASB's, which aim to clarify the financial statements. The author mentions that some companies report alternative earnings per share, using an adjusted profit value.

Another study that contradicts the previous studies is the one conducted by Coleet al. (2011), which analyzed 426 individuals (questionnaire respondents) as auditors, analysts, but also other users of financial statements, of which only 41% considered that the financial statements resulting from the application of IFRS contained comparable information. Respondents with more professional experience were the ones who least believe in the comparability of financial statements. Following the questionnaire, 13 problematic areas were identified, of which the most important are derivative financial instruments, fair value measurement, depreciation of financial assets. The main issues that arise in the 13 areas are the differences in interpretation, subjectivity and presentation of the content. Writers consider that comparability is not the only qualitative feature of financial statements and that the number of specific rules may offset or threaten the relevance and accurate representation of financial statements.

2.2 Mandatory IFRS adoption

The obligation to apply the IFRS standards was decided by the European Union in 2002, with the adoption of Regulation no. 1606/2002, requiring all companies listed in the EU countries to apply IFRS. The European Commission has stated that this regulation was adopted to help strengthen the freedom of capital movement, effective capital market operation and help companies to compete at the same level for financial resources in the markets (Aubert & Grudnitski, 2010). Thus, since 2005, more than 7,000 listed companies have moved from national accounting regulations to IFRSs.

Table 2. provides a list of the value-relevance studies on mandatory IFRS adoption, summarizing the topic and the results for each of them.

Table 2. Value-relevance studies on mandatory IFRS adoption

References	Topic	Result
Jeanjean and Stolowy (2008)	Impact of the mandatory IFRS adoption on earnings quality.	Factors like management incentives and some national institutional factors play a significant role in defining the financial reporting
Amstrong et al. (2010)	European capital market's reaction	Positive reaction for European companies with lower pre-adoption information quality and a more positive reaction for banks with a lower pre-adoption quality of information
Marra et al. (2011)	Board independence and the presence of an audit committee	An improvement of board and audit committee effectiveness being the results of the objective of IFRS, namely, a higher level of disclosure and transparency
Chua et al. (2012)	Earnings management, timely loss recognition and value relevance	The adopting firms show better timely loss recognition, a stronger association between accounting information and market-based data but a fewer earnings management.
Landsman et al. (2012)	The information content of earnings announcements in countries that mandate IFRS adoption	A positive association between mandatory adoption and the information content of earnings announcements

Horton et al. (2013)	The effect of mandatory IFRS adoption on firms' information environment.	That mandatory IFRS adoption had improved both information quality and accounting comparability
Cascino and Gassen (2015)	The effects of mandatory IFRS adoption on the comparability of financial accounting information.	IFRS adoption determined public firms to become less comparable with local private firms that continue to report under GAAP
Kouki (2018)	The effect of investor protection on earnings management under IFRS	Voluntary IFRS adoption associated with investor protection not affect the management on earnings management. Instead, mandatory IFRS adoption associated with investor protection has notably decreased earnings management

Source: Author

Jeanjean and Stolowy (2008) studied the impact of the mandatory introduction of IFRS on earnings quality. They confirm that a shared set of standards is not sufficient to establish a common business language, and there are several factors, like management incentives and some national institutional factors, which plays a significant role in defining the financial reporting characteristics.

Amstrong et al. (2010) investigated the European capital market's reaction to 16 events related to the adoption of IFRS in Europe that took place between 2002 and 2005. They found a positive reaction for European companies with lower pre-adoption information quality and a greater asymmetry of information before adoption, which was in line with investors who expect IFRS to improve the quality of information for these firms. They found a more positive reaction for banks with a lower pre-adoption quality of information. These findings were in line with investors expecting improvements in the quality of information. However, for firms domiciled in code law countries, they found a gradual negative reaction, which was likely to have a weaker application of accounting standards.

Marra et al. (2011) studied whether the board of directors is more effective in constraining earnings management of the Italian listed companies when the country has mandatory adoption of IFRS, focusing on two board characteristics: board independence and the presence of an audit committee. Using a sample of 222 non-financial companies listed on the Milan Stock Exchange, the researchers found that the board's independence and the presence of an audit committee have a greater monitoring function in reducing earnings management after the introduction of IFRS. Also, they believed that the improvement of board and audit committee effectiveness is the results of the objective of IFRS, namely, a higher level of disclosure and transparency, making it easier for independent directors and audit committees to supervise if the firm applies the accounting policies.

Chua et al. (2012) focused their research on examining if the mandatory implementation of IFRS in Australia impacted on accounting quality by focusing on three perspectives: earnings management, timely loss recognition and value relevance, using a final sample of 172 the companies listed on Australian Stock Exchange (ASX). Their research demonstrated that the adopting firms show better timely loss recognition, a stronger association between accounting information and market-based data but a fewer earnings management. These results pointed out that the mandatory adoption of IFRS had improved the quality of financial reporting in Australia, providing more comparable evidence to a non-EU adopting countries that are similarly not motivated by the EU harmonization efforts in implementing the mandate to adopt IFRS.

Landsman et al. (2012) analyzed the information content of earnings announcements in countries that mandate IFRS adoption relative to countries that retain domestic accounting standards, measuring information content as either abnormal return volatility or abnormal trading volume. Adopting a difference-in-differences approach, the authors compare changes in information content for firms from 16 mandatory-IFRS-adopting countries against those for firms in 11 countries that retained local GAAP. They used a difference-in-differences approach, comparing changes in information content for 16 countries that mandated adoption of IFRS and 11 countries that retained

local GAAP. The results from their analysis revealed a positive association between mandatory adoption and the information content of earnings announcements.

Horton et al. (2013) provided an investigation on the effect of mandatory IFRS adoption on firms' information environment. Their purpose was to contribute to knowledge on this vital topic, investigating whether the adoption of mandatory IFRS has improved the business information environment. They found that mandatory IFRS adoption consensus forecast errors have decreased for firms that mandatorily adopt IFRS comparative to forecast errors of other firms. Moreover, these results suggested that mandatory IFRS adoption had improved both information quality and accounting comparability, as a result of improving the quality of information intermediation in the capital market.

Cascino and Gassen (2015) investigated the effects of mandatory IFRS adoption on the comparability of financial accounting information. Their results show that IFRS adoption determined public firms to become less comparable with local private firms that continue to report under GAAP. Another conclusion of their study was that cross-country comparability improvements required compliance with standards, within-country reporting comparability being affected by mandating IFRS adoption for some companies.

Kouki (2018) made research on a comparative study between pre-adoption and post-adoption periods of IFRS, investigating the effect of investor protection on earnings management under IFRS using 106 firms listed on the stock markets of three countries, Germany, France and Belgium. His results provide that voluntary IFRS adoption associated with investor protection not affect the management on earnings management. Instead, mandatory IFRS adoption associated with investor protection has notably decreased earnings management. He suggested that the legal system, the authority of auditing and reporting and the efficiency of the corporate board of any country could diminish the materialistic behavior of managers, being possible to protect financiers against asymmetric information and to cut down the level of conflicts of interest.

2.3 Voluntary IFRS adoption

The mandatory adoption of IFRS did not happen until 2005, so a few European countries had allowed firms to adopt IAS voluntarily in the early 1990s. These voluntary adopters were the attraction of the researchers. They were making efforts to provide initial insights into the potential economic consequences of IFRS adoption.

Table 3. provides a list of the value-relevance studies on voluntary IFRS adoption, summarizing the topic and the results for each of them.

Table 3. Value-relevance studies on voluntary IFRS adoption

References	Topic	Result
Van Tendeloo and Vanstraelen (2005)	Association between voluntary adoption of IFRS in Germany and lower earnings management	Listed companies had used better earnings management under IFRS
Hope et al. (2006)	Institutional factors that influence countries' decisions to adopt IFRS voluntarily	Countries with weaker shareholder protection mechanisms are more inclined to adopt IFRS than are countries with stronger shareholder protection mechanisms
Covrig et al. (2007)	The attraction of foreign investors to companies that voluntarily adopt IAS (IFRS)	Foreign mutual fund ownership is higher for IFRS adopters in more poor information environments or lower investor visibility compared to IFRS adopters in higher information environments and higher investor visibility
Barth et al. (2008)	Association of IFRS with higher accounting quality	Firms which voluntarily adopt IFRS have fewer earnings management, more timely loss recognition and more value relevance of accounting amounts

André et al. (2012)	Determinants of voluntary adoption of IFRS	Determinants like internationality, leverage, firm size and auditor's reputation gave significant beneficial impacts on UK unlisted firms' choice in adopting IFRS voluntarily.
Kim and Shi (2012)	Impact of voluntary IFRS adoption on the information intermediation activities of individual analysts	That voluntary IFRS adoption improves the quality of public information to a greater degree than the quality of private information

Source: Author

Van Tendeloo and Vanstraelen (2005) evaluated if exists an association between voluntary adoption of IFRS in Germany and lower earnings management. The research presumed that companies that are committed to providing investors with transparent information would adopt IFRS. The earnings management was examined using absolute discretionary accruals based on Jones (1991) model and earnings smoothing based on the correlation between accruals and operating cash flow. From this research resulted that the listed companies had significantly higher absolute discretionary accruals and earnings smoothing based on the significant negative correlation between operating cash flow and accruals than did the non-listed companies, suggesting that listed companies from Germany had used better earnings management under IFRS.

Hope et al. (2006) have examined what institutional factors influence countries' decisions to adopt IFRS voluntarily. Using a sample of 38 countries, they found a significant negative association between the adoption of IFRS and investor protection. Moreover, also, that countries with weaker shareholder protection mechanisms are more inclined to adopt IFRS than are countries with stronger shareholder protection mechanisms.

Covrig et al. (2007) have tested whether foreign investors are differentially attracted to companies that voluntarily adopt IAS (IFRS). Using on a sample of holdings in non-US stocks by 25,000 mutual funds around the world, the study shows that stock ownership by foreign mutual funds increases with the adopting IAS voluntarily. Their analysis was a comparative one, splitting up the sample into two groups based on firms' information environment or visibility and comparing IAS adopters in insufficient information or lower visibility environments with IAS adopters in higher information environments with higher investor visibility. The results suggested that the foreign mutual fund ownership is higher for IAS adopters in more poor information environments or lower investor visibility compared to IAS adopters in higher information environments and higher investor visibility.

Barth et al. (2008) have examined if the application of IFRS is associated with higher accounting quality, comparing accounting quality metrics for a sample of firms in 21 countries that adopted IAS (IFRS) between 1994–2003. They found that firms which voluntarily adopt IAS have fewer earnings management, more timely loss recognition and more value relevance of accounting amounts.

André et al. (2012) investigated the determinants of voluntary adoption of IFRS by medium-to-large UK unlisted firms. For their full sample, they found that determinants like internationality, leverage, firm size and auditor's reputation gave significant beneficial impacts on UK unlisted firms' choice in adopting IFRS voluntarily. Other determinants, like profitability, capital intensity, manufacturing industry, financial industry, growth, ownership structure and employee productivity were not affected by the decision in choosing IFRS by UK unlisted firms.

Kim and Shi (2012) have studied the impact of voluntary IFRS adoption on the information intermediation activities of individual analysts. Using a large sample of 17,227 firm-year observations with voluntary IFRS adopters and non-adopters from 29 countries over the period 1998–2004, they investigated if voluntary IFRS adoption alters analysts' decisions to follow a specific firm and if voluntary IFRS adoption improves the precision of analysts' information sets. Their results suggested that voluntary IFRS adoption encourages financial analysts to follow adopter firms. Moreover, also, that voluntary IFRS adoption is associated with the accuracy of information available to analysts. The

study conclusion was that voluntary IFRS adoption improves the quality of public information to a greater degree than the quality of private information.

2.4 Convergence and financial reporting quality

Accounting convergence has become a necessity resulting from the requirements of users of financial statements. The need to achieve convergence is the result of the rapid globalization of the capital market and the claims that financial statements of economic entities can be comparable to facilitate access to international capital. In order for this comparability of accounting systems to be made, the differences between these systems should be identified and analyzed.

Convergence could be seen as a process of reuniting standards issued by the IASB and existing standards issued by national institutions alternatives to transactions and economic events. The ultimate goal of the process was the achievement of a set of high-quality global standards developed by the IASB and adopted by all national standardization institutions.

Table 4. provides a list of the value-relevance studies on convergence, summarizing the topic and the results for each of them.

Table 4. Value-relevance studies on convergence

References	Topic	Result
Larson and Street (2004)	Barriers to European-level convergence	National capital markets left behind, insufficient guidance on first-time application of IFRS, close link between taxation and accounting, complicated nature of standards, lack of transparency, lack of experience among professional accountants and high costs of convergence
Choi and Meek (2011)	Notions of harmonization and convergence	Harmonization refers to the elimination of differences between existing accounting standards, while convergence would require the application of a new accounting treatment by phasing out differences through the collaborative efforts of the IASB and other groups seeking solutions to accounting and reporting problems.
Odia and Ogiedu (2013)	Benefits of the convergence process	Transparency and greater understanding of financial statements, lower cost of capital, higher prices due to investors' confidence in information transparency, lower national standards for lower standards, more relaxed regulation of securities, easier comparability of cross-border financial information, investment opportunities, growth the credibility of domestic markets for foreign investors.
Quinn (2014)	Quality of international accounting standards	Convergence process with IFRS reduces the gap between national accounting standards of certain countries and international standards

Source: Author

Larson and Street (2004) examined the convergence efforts of 17 countries in Europe that at that time, in 2004, were integrated or were about to be integrated into the European Union, had economic or political ties with it. The study focused mainly on 13 countries because they provided detailed answers to the 2002 convergence survey by major accounting firms. On a general level, the barriers to European-level convergence identified by Larson and Street (2004) were: national capital markets left behind, insufficient guidance on first-time application of IFRS, close link between taxation and accounting, complicated nature of standards, lack of transparency, lack of experience among professional accountants and high costs of convergence.

Choi and Meek (2011) considered that the notions of harmonization and convergence are closely linked. Harmonization refers to the elimination of differences between existing accounting standards, while convergence would require the application of a new accounting treatment by phasing out differences through the collaborative efforts of the IASB and other groups seeking solutions to accounting and reporting problems. They support the notion that neither harmonization nor convergence implies replacing national and international standards, considering that they can coexist. This paper also mentions that harmonization and convergence do not mean standardization, being a more rigid term implying the imposition of specific rules, while harmonization and convergence are flexible approaches to achieving compatibility. Here is also a presentation of the main objectives of the IASB, including: developing, in the public interest, a single set of high quality, affordable and applicable global standards that impose qualitative, transparent and comparable information in financial statements and reports to support participants in world capital markets and other users in making economic decisions and achieving the convergence of national accounting standards, international accounting standards, and international financial reporting standards to high-quality solutions.

The IFRS convergence has predicted that the scope of disclosure and the adoption of internationally accepted accounting practices will be expanded, contributing primarily to reducing a significant risk in foreign investment and removing a significant source of uncertainty associated with comparing financial statements in the country with those from abroad (Qu, Fong, & Oliver, 2012).

Odia and Ogiedu (2013) have identified multiple benefits of the convergence process, such as: transparency and greater understanding of financial statements, lower cost of capital, higher prices due to investors' confidence in information transparency, lower national standards for lower standards, more relaxed regulation of securities, easier comparability of cross-border financial information, investment opportunities, growth the credibility of domestic markets for foreign investors. At the same time, researchers believe that economic staff will have greater mobility across national borders. The article mentions improvements in the quality of bookkeeping, reducing the informational asymmetry between managers and shareholders, improvements that are highlighted by the proper management of assets and earnings, by lower capital costs and by higher forecasting capacity of future company earnings.

Quinn (2014) studied the quality of international accounting standards and argued that standards vary from a qualitative point of view depending on foreign countries, their ethical standards, social values and political systems. The study suggests that international harmonization of standards cannot be easily achieved because institutional factors play an essential role in disseminating information. The convergence process with IFRS reduces the gap between national accounting standards of certain countries and international standards. The study also identifies that harmonization could be beneficial for multinational companies, international accounting firms as well as national ones.

3. CONCLUSIONS

This paper summarized the empirical evidence by chronological order in the literature about the outcomes of the IFRS adoption on financial reporting quality. In doing so, the paper focused on three factors around IFRS adoption (mandatory, voluntary and convergence) providing a clear picture of empirical archival literature.

Many studies related to the IFRS adoption have been published in last years, which I divided in three groups. The first group included studies analyzing the impact of the mandatory adoption of IFRS. The second group included studies analyzing the impact of voluntary adoption of IFRS, while the thirds one referred to studies examining the effects of convergence.

We can conclude that academic research is a helpful resource which can help standard setters better understand the outcomes of accounting standards, helping in identifying issues (Palea, 2013).

BIBLIOGRAPHY

Alali, F., & Cao, L. (2010). International financial reporting standards — credible and reliable? An overview. *Advances in Accounting, incorporating Advances in International Accounting 26*, 79–86.

André, P., Walton, P., & Yang, D. (2012). Voluntary adoption of IFRS: A study of determinants for UK unlisted firms. *Comptabilités et Innovation*.

Armstrong, C. S., Barth, M. E., Jagolinzer, A. D., & Riedl, E. J. (2010). Market Reaction to the Adoption of IFRS in Europe. *The Accounting Review, Vol. 85, No. 1*, 31–61.

Aubert, F., & Grudnitski, G. (2010). The Impact and Importance of Mandatory Adoption of International Financial Reporting Standards in Europe. *Journal of International Financial Management & Accounting, 22(1)*, 1–26.

Ball, R. (2006). International Financial Reporting Standards (IFRS): pros and cons for investors. *Accounting and Business Research, vol. 36, Special Issue 1*, 5–27.

Barth, M., Landsman, W., & Lang, M. (2008). International accounting standards and accounting quality. *Journal of Accounting Research, vol. 46, no. 3*, 467–498.

Brown, P. (2011). International Financial Reporting Standards: what are the benefits? *Accounting and Business Research Vol. 41, No. 3*, 269 –285.

Cascino, S., & Gassen, J. (2015). What Drives the Comparability Effect of Mandatory IFRS Adoption? *Review of Accounting Studies, 20 (1)*, 242–282.

Choi, F. D., & Meek, G. K. (2011). *International Accounting, seventh edition.* Prentice Hall.

Chua, Y. L., Cheong, C. S., & Gould, G. (2012). The Impact of Mandatory IFRS Adoption on Accounting Quality: Evidence from Australia. *Journal of International Accounting Research, Vol. 11, No. 1*, 119–146.

Cole, V., Branson, J., & Breesch, D. (2011). The illusion of comparable European IFRS financial statements. Beliefs of auditors, analysts and other users. *Accounting and Management Information Systems, Vol. 10, No. 2*, 106–134.

Covrig, V. M., Defond, M. L., & Hung, M. (2007). Home Bias, Foreign Mutual Fund Holdings, and the Voluntary Adoption of International Accounting Standards. *Journal of Accounting Research, Vol. 45 No. 1*, 41–70.

Damant, D. (2006). Discussion of 'International Financial Reporting Standards (IFRS): pros and cons for investors'. *Accounting and Business Research, vol. 36 no. sup1*, 29–30.

Hope, O.-K., Jin, J., & Kang, T. (2006). Empirical Evidence on Jurisdictions that Adopt IFRS. *Journal of International Accounting Research, 5(2)*, 1–20.

Horton, J., Serafeim, G., & Serafeim, I. (2013). Does Mandatory IFRS Adoption Improve the Information Environment? *Contemporary Accounting Research, Vol. 30, No. 1*, 388–423.

IASB. (2018, september 12). *Who we are.* Retrieved from IFRS.org: https://www.ifrs.org/about-us/who-we-are/

Jeanjean, T., & Stolowy, H. (2008). Do accounting standards matter? An exploratory analysisof earnings management before and after IFRS adoption. *J. Account. Public Policy 27*, 480–494.

Kim, J.-B., & Shi, H. (2012). Voluntary IFRS Adoption, Analyst Coverage, and Information Quality: International Evidence. *Journal of International Accounting Research: Spring, Vol. 11, No. 1*, 45–76.

Kouki, A. (2018). Mandatory IFRS adoption, investor protection and earnings management: A data analysis of Germany, France and Belgium listed companies. *International Journal of Accounting & Information Management, Vol. 26 Issue: 1*, 187–204.

Landsman, W. R., Maydew, E. L., & Thornock, J. R. (2012). The information content of annual earnings announcements and mandatory adoption of IFRS. . *Journal of Accounting and Economics, 53(1-2),*, 34–54.

Larson, o. K., & Street, D. L. (2004). Convergence with IFRS in an expanding Europe:progress and obstacles identified by largeaccounting firms' survey. *Journal of International Accounting, Auditing and Taxation13*, 89–119.

Marra, A., Mazzola, P., & Prencipe, A. (2011). Board Monitoring and Earnings Management Pre- and Post-IFRS. *The International Journal of Accounting 46* , 205–230.

Odia, .. J., & Ogiedu, K. (2013). IFRS Adoption : Issues, Challenges and Lessons for Nigeria and other Adopters. *Mediterranean Journal of Social Sciences, Vol 4 No 3* , 389–399.

Palea, V. (2013). IAS/IFRS and financial reporting quality: Lessons from the European experience. *China Journal of Accounting Research 6*, 247–263.

Panagiotis, A., & Stergios, A. (2011). Use of International Accounting Standards and Source of Finance: the Case of Greek Companies Listed in the Athens Stock Exchange. *ternational Research Journal of Finance and Economics, Issue 78*.

Qu, W., Fong, M., & Oliver, J. (2012). Does IFRS convergence improve quality of accounting information? – Evidence from the Chinese stock market. *Corporate Ownership & Control / Volume 9, Issue 4*.

Quinn, E. J. (2014). The Challenges for Establishing the Convergence of Accounting Reporting Among Different Countries. *International Journal of Academic Research in Accounting, Finance and Management Sciences Vol. 4, No.2*, 144–151.

Sidik, M. H., & Rahim, R. A. (2012). The Benefits And Challenges Of Financial Reporting Standards In Malaysia: Accounting Practitioners' Perceptions. *Australian Journal of Basic and Applied Sciences, vol. 6, no. 7*, 98–108.

Van Tendeloo, B., & Vanstraelen, A. (2005). Earnings management under German GAAP versus IFRS. *European Accounting Review, Vol. 14, No. 1*, 155–180.

Zeff, S. A. (2007). Some obstacles to global financial reporting comparability and convergence at a high level of quality. *The British Accounting Review 39*, 290–302.

Zeghal, D., & Mhedhbi, K. (2012). Analyzing the effect of using international accounting standards on the development of emerging capital market. *International Journal of Accounting and Information Management, Vol. 20 Iss: 3*, 220–237.

EXPLORATION OF THE ETHICAL PROFILE OF THE ROMANIAN ACCOUNTANTS AND WOMEN IN ACCOUNTANCY

Cristina – Florina ȚICOI
The Bucharest University of Economic Studies, Romania
cristina@cristinaticoi.ro

Abstract
This paper aims to examine the ethical and moral profile of accountants in Romania, as a further step in understanding the adapting of the accountants' profile to the evolution of the profession in the context of an accounting system that "went through complex accounting reforms of more than two decades" (Mustață et al., 2011). The study also treat the gender issue, the contrast between women's predominance in the profession and women's absence from senior roles in accountancy.
This work is a qualitative study, the review of the relevant literature of the past 7 years, blended with a research based on semi-structured interviews with Romanian professionals.
The study is organized as follows: a short introduction in the ethical and moral profession profile is followed by the literature review, the description of the research methods and the presentation of the results.

Keywords: *Accountancy, Ethics, Gender, Moral, Profession*

1. INTRODUCTION

The actual research is part of a wider project which objectives regard the study of different details of the profession and professionals in Romania, with the final goal to achieve enough information to understand and draw a complete image of the modern accountancy profession in Romania.

This paper aims to triangulate data from international academic literature and local interviews, in order to identify information regarding the ethical and moral profile of accountants between students, probationers and professionals. The purpose is to draw a wider picture of the professionals and compare the results with the reality of the Romanian context.

The research also intends to explore the mismatch between the disparity of women engaged in the profession and women leading in senior roles in accountancy, examining the international context and estimate similarities in the local market.

Accountancy in Romania is acting quite recent on a market – based economy, for 29 years, since the fall of communism in 1989. The stages of the accountancy can be explained through the evolution of the economic relations in the society, between the exchange and production (Burlaud, 2011).

In the last decades, in Romania, accountancy evolved together with the economic necessity of the market. So the professionals. The accounting system "went through complex accounting reforms of more than two decades" (Mustață et al., 2011). Filip and Raffournier (2010 cited in Musatață et al., 2011) considers that 1989 represented a starting point of transformations and reforms in several areas of Romanian economics, including accounting.

From a legal and technical perspective, we are referring to the harmonization process that the Romanian accounting system had to achieve regarding the European Acquis, and the adjustment at the International Accounting Standards and International Financial Reporting Standards that shook the traditional system. As consequence, a metamorphosis of the profession followed. New experiences and challenges had to be faced by the professionals which are now important part of the economic life in Romania, still achieving skills and acknowledgement of their role in the society.

The study is organized as follows: a literature review on the moral profile of the professionals in an international context and gender issue is followed by the description of the research method. Data analysis follows, and a conclusion part ends the paper.

2. LITERATURE REVIEW

Recent research (Bampton et al., 2013; Tweedie et al., 2013 cited in Baker, 2014, p. 3) indicates that "the proportion of business ethics literature devoted to accounting and the proportion of academic accounting literature devoted to ethical issues are both small, and yet there has been a steady accumulation of research devoted to ethical issues in accounting".

The papers resumed below studied accountants' ethics from different perspectives like ethics in education, ethics in codes of ethics, perception of ethics between men and women in different cultures. A study developed in Turkey (Uyar and Güngörmüş, 2011) investigate accounting professionals' perceptions of ethics awareness, ethics education in university and pre-qualification, and the coverage of accounting ethics education. Data was collected using questionnaire based on a review of earlier studies on 219 accountants.

The findings demonstrated that the respondents have not taken ethics education previously and that all stages of education life, from kindergarten to university, are important and contribute to the development of ethics awareness. The survey revealed that ethics education should concern the university education, but also the secondary and high school stages.

Since an individual's personality is shaped within family primarily by behaviors of parents, responses indicated that family life plays a key role in the development of ethics awareness. The ethics awareness is considered to be influenced also by peers, education life, teachers, social activities and work environment.

The respondents considered a course of ethics to be the most appropriate approach in teaching and develop the ethical awareness. Professional need to show interest in setting the regulations and taking precautions about ethical work. Corporations have also great responsibility in ensuring ethical behavior among employees and should not foster unethical behavior like pressure on targets together with high rewarding.

Another research conducted in the U.S. (Baker, 2014), using the Foucault's concept of "codified discourse" presents the development of US public accounting profession over the last century. The study revealed that there was little ethical component in the original code of ethics of the profession, promulgated in 1917, that regulated the practice of accounting, as the private interests of the profession was protected as it regulated accounting practice rather than enhance the ethical behavior of accounting professionals.

More recent version of the code contains aspirational elements regarding ethical behavior, but which incorporates few enforceable provisions. The research found out that the ethical discourse of the profession, is located more in the behaviors of accountants practicing in international public accounting companies. In the Foucauldian sense the professional accountant is self-regulated and self-formed into an ideal member of the profession.

The question addressed is whether the code of ethics is protecting the public interest or serving the private interests of the profession? The results show that the ethical aspects of the profession can be found rather in the early self-forming practices of the profession than in its code of ethics. The study reveals that the market forces have also affected the code in significant ways like the acquisition of public accounting firms by non-accounting firms. Even if the main purpose of these changes was to facilitate the competitive ability of CPA's in alternate practice areas, this also removed the few remaining rules regarding professionalism like encroachment, competitive bidding, advertising, commissions, and contingency fees. The study reveals that there is still questionable if the U.S. CPA's will dedicate to achieving success or to the moral principles like independence, integrity and objectivity.

A study conducted in Iran (Modarres, 2011) analysed the extent to which Iranian accountants think ethically and the factors influencing the level of Iranian accountants' ethical decisions. The authors used four theoretical ethics models that have been previously developed by (Keller et al., 2007), (Epstein and Spalding, 1993), (Duska and Duska, 2003): egoism, utilitarianism, deontology and religious, which were tested with two statements ranked on a five point Likert scale.

There were differences in ethical standards according to gender as females have stronger religious beliefs and males are more egoistic than females. The study revealed also that the level of education influences the level of ethics criteria. The results show that familiarity with the IACPA Codes of Ethics for Professional Accountants leads to a higher level of ethical standards. The results also show that Iranian accounting students' level of ethics is nearly moderate and there is a need for an ethics educational program in accounting courses in universities in Iran as the accounting curriculum of Iranian universities does not include accounting and business ethics. This finding is in line with the study of Uyar and Güngörmüş (2011) which concludes that a course of ethics to be the most appropriate approach in teaching and develop the ethical awareness.

The study considers the role of the IACPA Code of Ethics established in 2003 in creating awareness of ethics among Iranian accountants. The Code suggest that the responsibility of an accountant should be more than satisfying the needs of an individual and should meet the "public interest"; accountants are invited to work at "the highest standards of professionalism" and "the highest level of performance". Therefore, the IACPA Codes of Ethics encourage utilitarianism and deontology. The study suggests that both Islam religions and IACPA Codes of Ethics encourage utilitarianism and deontology – ethical principles of religions and Islam. While utilitarian, deontological, and religious ethical thinking are fundamentals of the IACPA Code of Ethics, it seems that Iranian accounting students' reliance on these schools of thinking is not strong.

A study conducted by Albu et al. (2011) studied the changing role of accountants in Romania, where a number of interventions like harmonization with the European Directives, the introduction of International Financial Reporting Standards (IFRS) and of modern information technologies such as Enterprise Resource Planning (ERP) software made the accounting system more then "a tool to support a planned economy". The study reveals that the traditional specialized position of the accountant would move towards hybrid positions, as the UK models. In order to obtain an overview of the expectations and roles of accountants, the study used the work of Bollecker (2000) and Jarvenpaa (2007) in analysing a number of job offers posted online. The study aims to find out what are the current expectations for a Romanian accountant in business and if they reflect a decision-oriented approach. The sample was formed by 1200–1500 announcements gathered during 2007, 2008 and 2009. The existing clear separation between financial accounting and management accounting resulted to move towards a hybridization. The frequency of the hybrid category has increased in 2008 and 2009 compared to 2007, demonstrating a tendency towards hybridization. In line with previous studies, the paper found that the process of hybridization is associated with ERP usage and that the accountant is transforming more and more into a consultant or business analyst.

For the scope of this study, we are interested to research on the figure of women in accountancy. The studies cited below get us through the matter in different cultures and situations during time: the choice of independent careers, the absence of women from senior roles and the influence of stereotypes on women careen in accountancy.

The study conducted by Jeacle (2011) revealed the injustice brought to a Scottish woman in the 20th century, Hellen Lowe. The paper shows the choice of an independent career as an accountant over her submission to an accounting firm. This decision arose from a gender issue and her professional limitation because she was a woman, she could not advance in her career properly and had to do much more work than a man.

Another important point is discrimination against women of those times, despite their accounting preparation and experience, women were subjugated to men. All this information is supported by an archive that demonstrates the weight of imposing a woman on a society in which men's words are more important than the word of women. The story of Helen showed us that women have learned to turn the gender issue problem of that time to their advantage and provides a new alternative of setting up their own business. Choice of this woman leads to consequences far greater than a career in accounting, it creates a new perspective on women accounting and other opportunities.

In a recent paper elaborated in Australia (Adapa et al., 2016), the women's absence from senior roles in small and medium sized accounting firms has been explored. The regional context and

the gender stereotyping of the women resulted to be causes of the absence from senior roles in regional accounting firms. The study conducted thirty-one interviews with accountants working in small and medium sized accounting firms; each respondent was asked detailed questions about the internal corporate social responsibility and issues related to "doing gender" arose.

A majority of respondents spontaneously reported that there is an under representation of women in senior roles in regional accounting firms. Respondents raised that, the limited support services available for professionals balancing work and family in the regional context is a factor against progressing gender equity. Other argument raised was the exclusion of women from critical operational knowledge, and senior men's attitudes about the capabilities of women in the accounting profession.

The study conducted by Dambrin and Lambert (2012) investigates the issue of women's hierarchy in accounting, the places occupied by them in different institutions, people's perception of women's accounts, and the small number of women in the management position. The paper was dealt with in two important parts, the first deals with the relations between the objects of research, the design of the research in correlation with the results obtained on the basis of a sample. And the second is about experience in this field and changing attitudes to prevent different gender issues.

The study concludes that experiences of women in accountancy will change with the challenge of stereotypes. Fighting male stereotypes should maintain a work-life equilibrium for women. Changes in family models, the increasing of single-parent families constrains single fathers as much as single mothers, so we assist the metamorphosis of the stereotypes.

The rarity of women at the highest hierarchical levels of accountancy is not a due to their ability to take on such positions but rather a matter of time. Therefore, increasing the female population of the profession will automatically resolve the problems facing women.

3. RESEARCH APPROACH

In order to elaborate this paper, a review of the last 7 years of academic literature has been done together with qualitative methods as follows: the research was conducted in international publications like *Accounting in Europe*, *European Accounting Review*, *Critical Perspectives on Accounting*, *Accounting and Business Research*, *Accounting, Auditing and Accountability Journal*, and *Accounting and Management Information Systems*. The research was made using data base like Emerald Insight, and Clarivate Analytics Web of Science. The interogations have been done using keywords like: "Accountancy", "Ethics", "Gender", "Moral", "Profession", and 125 articles qualify connected to the subject of the research. For the elaboration of this paper 25 articles were selected and reviewed underneath.

A number of 11 interviews have been conducted with accounting professionals in Romania, 4 men and 7 women. The interviewers are not statistically representative. The interviews were semi-structured in the sense that I decided in advance on some topics to be covered during the interview. Interviews duration varied from a minimum of 40 min, to a maximum of 120 min. The interviews were conducted at the workplace of the interviewees or in my office in Constanța. All the interviewers are Romanian citizens and are based in Constanța. The interviews were carried out in Romanian, without using a voice recorder; notes were taken during the interviews and were fully transcribed. Content analysis of transcripts was performed afterward in order to identify the main themes and the observations were discussed by the authors to eliminate possible misunderstandings (Berry et al., 2004). No qualitative data analysis software was used in the process, as the number of interviews was not very voluminous.

4. RESULTS

In Romania, in line with the findings of the study conducted by Uyar and Güngörmüş (2011), ethics is not part of curricula during university studies in accountancy. The same study developed in Turkey, concludes that ethics awareness is shaped within family primarily by behaviors of parents, being influenced also by peers, education life, teachers, social activities and work environment. This conclusion is in line with the statement of I1: "Ethics should belong to the human education and to one's common sense, like a primarily instinct". On the matter, Lehman (2014, p. 214) argues that "The abstract idea of a phronemos and the concept of a virtuous life is directly applicable to the (non-)education of accounting." Lehman (2014, p. 1) explains that "The phronemos is Aristotle's term for a wise and ethical person who has the capacity to judge and act appropriately."

In Romania, the Body of Expert and Licensed Accountants of Romania (CECCAR) was established in 1921 and is the representative organism of the accountancy profession, non-profit and of public interest. The Body supports and promotes high quality professional practices through special concern for the competence, aptitudes and ethics of those involved in the profession. Due to its fundamental commandments, CECCAR provides quality assurance of the services supplied by its members, guarantees initial education and continuous development of the professional accountants, oversees knowledge and application of ethics and the deontological conduct of the professional accountants.

Career in accountancy in Romania begins with an exam to access a three years stage within the Body of Expert and Licensed Accountants of Romania (CECCAR). During the years of stage, the future accountants are taking ethics lessons and study The Code of Ethics, approved in 2005 by the IFAC Council. The code promotes integrity, objectivity, professional competence and due care, confidentiality and professional behavior. This may not be surprising in the context of other countries as well. For example, prior literature elaborated in U.S. (Baker, 2014) concludes that there was little ethical component in the original 1917 code of ethics of the profession, as it regulated accounting practice rather than enhance the ethical behavior of accounting professionals; more recent version of the code contains aspirational elements regarding ethical behavior, but which incorporates few enforceable provisions.

While ethics is supposed to be a strong professional value in accordance with the accountants' certification and membership to the professional body rules, in practice there are many nuances. Some of the intervieweers explain how they struggle to have an ethical behavior and resist pressures. One of the sources of pressures is the management of the company where accountants work. The management expects accountants to minimize the taxes paid. Reflective on the matter, I6 makes a very intersting affirmation:

> "All the clients want to obtain profits, but the accoutants only elaborate their financial data. As accountant, one should be honest and respect the law. But it's true, there are persons that desire to register a certain result. There are a lot of ways to fraud the law by eronated accounting registration".

At the same regard, I7 suggests that "Managers have often negative interference with the accountants, but they should express in writting the requests for the accoutants so there is a track". Very interesting statement of I11 that seems to conclude that the managers' request should not influence the ethics of the accountants that should simply quit their jobs if they are asked to do illegal registrations". This is in contrast with I10 which states that "managers allow accoutants to be ethics".

In other cases, the ethical behaviour and the lack of a network to support a less ethical behaviour might have negative financial consequences for accountants. At this regard, I3 states that:

> "Once I deposited an offer to a law office and I've been called to discuss. The first question that they addressed was if I know any key person at the Ministry of Finance in order to receive protection in case of frauds. The fact that I had only institutional contacts with the Ministry made me lose the contract".

As previously explained, after the fall of communism (Albu et al., 2014) Romania registered a number of important accounting reforms. This led to confusions and difficulties for the Romanian accountants that often harmed their ethics. At this regard, I2 considers that "The quality of the professional accounting services is influenced by the chaos legislation which expose the professionals to errors". The same intervieweed considers that "Because of the legislative confusion and ambiguousness, the Romanian state elaborates sets of rules, permanently incomplete. We use more of our creativity then working following rules, as we do not apply principles". Legislation changes together with bureaucracy is considered by I10 as factors that negatively influence the accountants' decisions and ethics. On the matter, I9 states that "Ethics in time has been influenced by the legislation politics".

The interviews showed that also ethics changed in time. As I6 states: "During my career, I did not analized my colleagues activity, but from the documents I revised during the time I noticed a decresing of the professionalism and so the ethics". I7 explains the causes behind the changing of ethics: "Ethics changed in time: during comunism every registration was dictated by the party. After the fall of comunism, the profession was shocked by the technology development, the documents are spurioused electronically and are harder to be identified".

In line with the conclusions of the study conducted by Modarres (2011) which revealed that the level of education influences the level of ethics criteria, we can by similarity say that the interviews showed that the professionals believe there is a direct link between professional competencies and ethics. I2: "The professional competencies are the most important fact influencing the profession, as the values that the performance gives you, helps flexibility and finding various solutions", I7 sates that: "Ethics suppose a lot of elements. First of all, as the professionals, accountants should master very well the legality of the registration of the data in the accounting system".

The study conducted in Iran (Modarres, 2011), analysed the extent to which Iranian accountants think ethically and the factors influencing the level of Iranian accountants' ethical decisions. The paper found ddifferences in ethical standards according to gender as females have stronger religious beliefs and males are more egoistic than females.

The present study also analyze the gender issue in Romania with the final goal of understanding the feminine position in the profession and "illustrate the considerable trials that that some women had to face in gaining admission to the profession", Haynes (2017, p. 114).

Statistics made using the demographic data base of the Body of Expert and Licensed Accountants of Romania (CECCAR), the branch of Constanta, showed that the percentage of women engaged in the profession is 85% (from a total of 1668 members, 1432 are women and 236 are men). This is in line with (Stivers et al.,1995) which study of the characteristics of accounting professionals engaged in consulting activities and states that demographics indicate that women are beginning to dominate the accounting profession. The percentage of accounting graduates who are female increased from 14 per cent in 1973–74 to 51 per cent in 1991. In addition, more than 50 percent of today's accounting students are women (Daidone, 1992).

The interviewers have been asked how do they perceive, from a professional point of view, the difference between male accountants and female accoutants. None of the respondents considers that gender is an issue influencing the results of the professionals: I6 states that "I can't say that a man's work is better then a woman's work. Professionalism is not influenced by gender" and I11 says that "From my point of view, between men and women there is no difference. Women in time evolved the same character and strength as men, fight for the same job and they managed very well their emotions". This is in line with previous literature by Pfeifer et al. (1978) that found no significant differences in personality traits between male and female MBA students and by Cumpstone (1982) which focused on personality traits and generally showed no significant difference between male and female accountants.

And still, the study analize on which are the reasons for finding more women then men engaged in the accounting career? A recent paper which objective is to analyze the motivations of choosing accountancy as profession in Romania (Țicoi and Albu, 2018) organized the research in categories of

factors influencing the professionals to choose accountancy. The study concluded as per second place of importance, the relational factors, with three variables: interactional perspectives and communication, team work and work conditions (comfort). The working comfort registered the highest mean score (3.650 out of 5) among these factors. The importance of this group of factors is in line with the results of previous studies (Sugahara and Boland., 2006). Our respondents like I10 states that: "In the acountancy profession, women are majority because they are more meticulous and like to work in a clean place. Men could be more rational and have a more developed logical thinking", while I6 affirm that:

> "Accountancy is an office job and is favorable for the women, they prefer to stay in the office then in a construction yard. Patience and feminine carachteristics have nothing to do with this. There are men more patience then women, I think it depends on each one".

Generally, the profession is considered easy phisically but intense intellectually I7 says that "The profession is less phisical even if is intelectualy hard work. They work with the pen and the computer". In detail, female caractheristics like patience and meticulousity have been considered to be major motivation of the presence in high percentaje of women in the profession. I8 affirm that: "Women are more patience, they enjoy details" and I9: "Women are more meticulous. From my point of view this profession requires analytical thinking – which is a native feminine feature", while I11 thinks that:

> "Women are more intuitive and meticulous and like planning. The prevailing of women in this career is given by the working at a desk, the clean environment, the possibility to advance from a professional point of view, the financial safety".

Finally, the study analize on which are the reasons for finding more men then women in key role positions in accounting profession. An Australian study (Adapa, 2016) noticed the women's absence from senior roles in small and medium sized accounting firms showed that the gender stereotyping of the women is the cause of the absence from senior roles in regional accounting firms. The study showed that the limited support services available for professionals balancing work and family in the regional context is a factor against progressing gender equity. This is in line with the findings of the interviews, most of the respondents considered that women responsibilities regarding the family require time which can not be dedicated to work and career. For example, I6 states that:

> "There are more men in the boards because women have more responsabilities after work and do not have time to dedicate to the career. I did not had time for this kind of things because I choosed to dedicate time to my family".

Instead, the affirmation of I9 seems to clear the eventual worries on the matter as

> "I think the reason is ancestral: the men is a hunter and women are mothers. Or it might come from the reminiscences of the misogynist society, but in my opinion the accomplishment of a woman comes from the family and not the career".

Nishiyama et al. (2014) studied, among other aspects regarding the motivations of the profession, the disproportion of turnover among female accountants. Dalton (1997) concluded that that disproportionate turnover among female accountants in Big 6 firms was due primarily to work/family conflict. At this regard, I7 states that: "Women do not assume the career because of their feminine nature: they are instable and often get pregnany so men are prefered". About the reasons why the men are prefred in the key roles, I10 states: "The reasons why in the boards the majority is masculine because they like competition, control and authority and I9 think that "Men are working more relaxed then women".

Even if during time women struggled to be admitted in the profession, as for example Mary Addison Hamilton being the first women to achieve membership of one of Australia's recognized professional accounting bodies or Helen Lowe in Scotland who established her own practice as she couldn't achieve career success within the discriminatory environment of the accounting firm she was

working for, it seems that in the recent years, from literature at this regard (Murphy, 1990 cited in Marlow and Carter, 2004) shows that an increasing number of women are "breaking through traditional gender – based occupational and sectorial confines by entering the autonomus liberal professions". Interviewers are in line with this conclusion, as they state that I8: "There are no more differences, there are also women in the boards of the companies" and I11: "Man are still considered more bossy, more self-contained, even if women already caught up from my point of view". Still, this is not in line with recent studies (Siboni et al., 2016, p. 7) which concludes that "Women are still systematically excluded from senior positions, even in the science sector, which is supposed to be the ultimate meritocratic domain. When women reach higher positions, they are often paid less than men in the same position. There could be no justification for these injustices".

5. CONCLUSIONS

The actual research is part of a wider project which objectives regard the study of different details of the profession and professionals in Romania, with the final goal to draw a complete image of the modern accountancy profession in Romania.

The information obtained in this paper using data from the academic literature and interviews, facilitate us to draw an ethical and moral profile of accountants in Romania and to explore the mismatch between the disparity of women engaged in the profession and women leading in senior roles in accountancy.

In Romania, ethics is not part of curricula during university studies in accountancy. Ethics studies begins in the years of stage within the Body of Expert and Licensed Accountants of Romania (CECCAR). We found out that "Ethics should belong to the human education and to one's common sense, like a primarily instinct" (statement of I1), in line with the conclusions of the study conducted by Uyar and Güngörmüş (2011) Turkey, that ethics awareness is shaped within family primarily by behaviours of parents, being influenced also by peers, education life, teachers, social activities and work environment.

We faced the ethics though the managers pressions on the accountant's activity and we found out that even if accountants some times face this kind of tension, they should maintain their profession integrity and resign if necessary. Our conclusion is that perseverance in applying the professions' principles and the professionalism are key factors in maintaining ethics level.

Statistics made using the demographic data base of the Body of Expert and Licensed Accountants of Romania (CECCAR), the branch of Constanta, showed that the percentage of women engaged in the profession is 85%. We concluded from the interviewers answers that gender is not an issue influencing the results of the professionals. But still we found out that there are more women then men engaged in the accounting career for different reasons like comfort of work conditions, patience. Being less physical, it seems the career is preferred by women.

Conseguently, the study analize on the contrast in finding more men then women in key role positions in accounting profession. We found out that the women's absence from senior roles is due to the gender stereotyping of the women. Their responsibilities regarding the family require time which can not be dedicated to work and career and that they reach accomplishment through family and not career. Although, it seems that nowadays there is enough place in the market for everyone, women interested in career can catch up with men which that per nature like competition and control.

BIBLIOGRAPHY

Adapa S., Rindfleish J. & Sheridan A. (2016). *'Doing gender' in a regional context: Explaining women's absence from senior roles in regional accounting firms in Australia*, Critical Perspectives on Accounting, Vol. 35, pp. 100–110.

Albu C.N., Albu N. & Alexander D. (2014). *When global accounting standards meet the local context— Insights from an emerging economy*, Critical Perspectives on Accounting, Vol. 25, pp. 489–510.

Albu C. N., Albu N., Faff R. & Hodgson A. (2011). *Accounting Competencies and the Changing Role of Accountants in Emerging Economies: The Case of Romania*, Accounting in Europe 8:2, pp. 155–184.

Baker C. R. (2014). *An examination of the ethical discourse of the US public accounting profession from a Foucaultian perspective*, Journal of Accounting & Organizational Change, Vol. 10, Iss. 2, pp. 216–228.

Bampton, R. and Cowton, C. (2013). *Taking stock of accounting ethics scholarship: a review of the journal literature,* Journal of Business Ethics, Vol. 114 No. 3, pp. 549–563.

Bollecker, M. (2000). *Controleur de gestion: une profession a` dimension relationnelle?*, 21e Congre`s de l'Association Francaise de Comptabilite´, Angers, France.

Bourdieu P, Wacquant L. (1992). *Réponses pour une anthropologie réflexive*. Paris: Seuil; trans. An Invitation to Reflexive Sociology. Chicago: The university of Chicago Press.

Dambrin C. & Lambert C. (2012). *Who is she and who are we? A reflexive journey in research into the rarity of women in the highest ranks of accountancy*, Critical Perspectives on Accounting, Vol. 23, pp. 1–16.

Duska, R.F. & Duska, B. (2003). *Accounting Ethics*, Blackwell, Oxford.

Epstein, M.J. & Spalding, A.D. (1993). *The Accountant's Guide to Legal Liability and Ethics*, Irwin, Homewood, IL.

Filip, A. & Raffournier, B. (2007). *The value relevance of earnings and a puzzling negative earnings change coefficient in an emerging market: a possible explanation*, International Conference on Accounting and Management Information Systems (AMIS), Bucharest.

Haynes K. (2017). *Accounting as gendering and gendered: A review of 25 years of critical accounting research on gender*, Critical Perspectives on Accounting, Vol. 43, pp. 110–124.

Jarvenpaa, M. (2007). *Making business partners: a case study on how management accounting culture was changed,* European Accounting Review, 16(1), pp. 99–142.

Jeacle I. (2011). *A practice of her own: Female career success beyond the accounting firm*, Critical Perspectives on Accounting, Vol. 22, pp. 288–303.

Keller, A.C., Smith, K.T. & Smith, L.M. (2007). *Do gender, level of education, religiosity, and work experience affect the ethical decision-making of US accountants?,* Critical Perspectives on Accounting, Vol. 18 No. 3, pp. 299–314.

Lehman G. (2014). *Moral will, accounting and the phronemos,* Critical Perspectives on Accounting, Vol. 25, pp. 210–216.

Marlow S., Carter S. (2004). *Accounting for change: professional status, gender disadvantage and self-employment*, Women in Management Review, Vol. 19, pp. 5–17.

Modarres A., Rafiee A. (2011). *Influencing factors on the ethical decision making of Iranian accountants*, Social Responsibility Journal, Vol. 7 Issue: 1, pp.136–144.

Mustaţă R. M., Fekete S., Matiș D. & Bonaci C. G. (2011). *Motivating accounting professionals in romania. analysis after five decades of communist ideology and two decades of accounting harmonization,* Accounting and Management Information Systems Vol. 10, No. 2, pp. 169–201.

Nishiyama Y., Camillo A. A., Jinkens R. C. (2014). *Gender and motives for accountancy*, Journal of Applied Accounting Research, Vol. 15, pp. 175–196.

Siboni b., Sangiorgi D., Farneti F. & Villiers C. (2016). *Gender (in) accounting: insights, gaps and an agenda for future research*, Meditari Accountancy Research, Vol. 24, pp. 158–168.

Sugahara S., Boland G. (2006). *Perceptions of the certificated public accountants by accounting and non accounting tertiary students in Japan*, Asian Review of Accounting, Vol.17, pp. 149–167.

Țicoi C.F. & Albu N. (2018). *What factors affect the choice of accounting as a career? The case of Romania*, Accounting and Management Information Systems, Vol. 17, pp. 137–152.

Tweedie, D., Dyball, M., Hazelton, J. and Wright, S. (2013). *Teaching global ethical standards: a case and strategy for broadening the accounting ethics curriculum*, Journal of Business Ethics, Vol. 115 No. 1, pp. 1–15.

Uyar A. & Güngörmüş A. H. (2013). *Accounting Professionals' Perceptions Of Ethics Education: Evidence From Turkey,* Accounting and Management Information Systems, Vol. 12, No. 1, pp. 61–75.

CASH FLOWS IN ENTITIES THREATENED WITH BANKRUPTCY – THE CASE OF COMPANIES LISTED ON THE WARSAW STOCK EXCHANGE IN 2015–2017

Tomasz MAŚLANKA, Iwona MAZUR-MAŚLANKA
Cracow University of Economics, Poland
maslankt@uek.krakow.pl, maslanki@uek.krakow.pl

Abstract
The paper presents the possible uses of cash flow statements in assessing an entity's financial standing. Also, it makes an attempt to identify the possible uses of cash flows in verifying the threat to continuing as a going concern. The presented analysis is based on the financial data of companies listed on the Warsaw Stock Exchange (WSE) which went bankrupt in 2015–2017.
In the paper it was pointed out that a comprehensive and reliable analysis of a company's financial condition should be based on a simultaneous analysis of information provided in the statement of cash flows, a balance sheet and profit and loss account.
The employed research methods include a review of literatures, financial statement analysis with special attention given to the statement of cash flows, and descriptive statistics related to relevant analytical ratios.

Keywords: *cash flow statement, corporate bankruptcy, financial liquidity*

JEL Classification: G30, G33, M41

1. INTRODUCTION

In the constantly changing business environment a company's survival relies on its ability to respond to changes. In a long-term perspective, a business entity is not able to continue its operations without generating profits and increasing its value. In a short-term perspective, it is necessary for a company to have the ability to meet its financial obligations in due time, i.e. to maintain its financial liquidity. Literatures point out that companies fail due to the lack of funds for settling their current payments rather than as a result of the lack of profits (Czekaj, Dresler, 2002, p. 116; Wędzki, 2002, p. 35; Maślanka, 2012).

The paper aims to verify the possible uses of the statement of cash flows in a definite assessment of a company's financial condition and its expected failure. The paper presents cash flows in companies threatened with a business failure, referring them to entities in good financial condition. Considerations are based on the financial data of selected WSE companies (on the main and parallel trading floor). The analysis covers the business failures of publicly traded companies in 2015–2017.

The employed research methods include a review of literatures, financial statement analysis with special attention given to the statement of cash flows, and descriptive statistics related to relevant analytical ratios.

2. THE USE OF CASH FLOWS IN ASSESSING THE FINANCIAL STANDING OF COMPANIES THREATENED WITH A BUSINESS FAILURE

Literatures (e.g. Czekaj, Dresler, 2002; Waśniewski, Skoczylas, 2002; Sierpińska, Jachna, 2006; Kędzior 2010; Kędzior, 2012) present a large number of considerations related to the use of a balance sheet, a profit and loss account as well as related economic indicators presented in financial statements in economic and financial analysis. A broadly understood objective of economic and financial analyses can be the determination of a company's profitability, its determinants and a company's economic value (Grabińska, Grabiński, 2017; Grabińska, Grabiński, 2018). Numerous

publications (including Carlslaw, Mills, 1991; Figlewicz, Zeller, 1991; Giacomino, Mielke,1993; Zeller, Stanko, 1994; Juchau, Ross, 1994; Sylvestre, Urbancic, 1994; Sierpińska, Wędzki, 2002, pp. 52–57; Maślanka, 2006; Tokarski, 2016; Andrzejewski, Mazur-Maślanka, 2017) refer to the possible use (in assessing a company's financial standing) of the statement of cash flows along with the ratios based on selected cash flow statement items. Considerations on the determinants of operating cash flows, with special attention given to financial liquidity and the threat to continuing as a going concern, are presented by B. Orliński (2013).

In 1984, C. Casey and N. Bartczak presented the results of their research study on the use of cash adequacy ratios for the purpose of the repayment of total and short-term liabilities in the period of expected failure (Casey, Bartczak, 1984). The study was based on the financial data of US companies in 1971–1982 (the analysis covered 60 bankruptcies and 230 "good" companies). One year before the collapse the above ratios stood at the effectiveness level of 72% and 75%, respectively. In 1985, the authors (Casey, Bartczak, 1985) presented the results of research on the use of these ratios in multivariate discriminant analysis. The proposed bankruptcy prediction model, based on the above ratios and six other analytical measures, was characterised by effectiveness at the level of 87% one year before bankruptcy. A comparable effectiveness of models was achieved with the use of ratios based only on a balance sheet and a profit and loss account.

L. R. Gilbert, K. Menon, K. B. Schwartz (1990) presented the possible applications of ratios based on cash flow statements[1] in bankruptcy prediction with the use of logit analysis. In the course of research studies, the authors showed a significant and positive impact of the above measures on the effectiveness of bankruptcy prediction models. A positive impact of measures based on cash flows on the effectiveness of bankruptcy prediction tools can also be confirmed by research studies which point to a low correlation between effectiveness and cash adequacy ratios and ratios exclusively based on a balance sheet and a profit and loss account (Bowen, Burgstahler, Daley, 1986; Wędzki, 2003; Maślanka, 2008, p. 256). A low correlation indicates that the above ratios represent different economic information. On the other hand, some other authors (Gombola, Haskins, Ketz, Williams, 1987) claim that measures based on cash flows do not in any way increase the effectiveness of bankruptcy prediction measures.

A. V. N. Murty, D. P. Misra (2004) presented a research study in which multivariate discriminant analysis was based exclusively on productivity or cash adequacy ratios. The proposed bankruptcy model developed on the basis of this assumption had the effectiveness level of 86%.

In the Polish economic reality, research on the use of cash flow statements in bankruptcy prediction has been conducted by such authors as T. Maślanka (2008), D. Wędzki (2010), A. Stefański (2012).

The study conducted by T. Maślanka in 2008 was based on a sample of companies listed on the Warsaw Stock Exchange. The analysis covered selected bankruptcies in 2000–2004, excluding entities engaged in broadly understood financial activities. The study covered the financial statements of 40 bankrupt companies and 40 enterprises characterised by a good financial condition. The conclusions resulting from a preliminary analysis of cash flow statements and changes in effectiveness and cash adequacy ratios were as follows (Maślanka, 2008, pp. 210–-218):

- one year before bankruptcy positive operating cash flows dominated in entities in good financial standing (80%). However, more than half of entities threatened with a business failure (55%) also recorded positive operating cash flows,
- positive cash flows from investing activities one year before bankruptcy occurred in 47.5% of companies facing bankruptcy,
- ratios based on cash flows one year before bankruptcy are characterised by an average (65%–70%) discriminant ability (division of companies into good and threatened entities). Simultaneously, selected liquidity and debt ratios (especially those based on a cash surplus) reached individual prediction abilities at the level of 80%–85%.

[1] The authors employed the following ratios: adequacy of operating cash for repayment of total liabilities, adequacy of operating cash for repayment of short-term liabilities, and total asset cash productivity.

Most of the companies analysed by T. Maślanka recorded negative financial results at various levels of business activities (75%–82.5%). In his further research, the author proposed a multivariate discriminant model based on, among others, cash flow operating ratios. The classification effectiveness (one year before bankruptcy) of the above model was 92.5%, while in the validation sample – 90%. The verification of the effectiveness of the above model in subsequent years (Mazurczak, Turek-Radwan, 2013) indicated a comparable effectiveness of 86.7%.

3. RESEARCH SAMPLE AND EMPLOYED RESEARCH METHODS

The paper presents cash flows in companies which go bankrupt, referring them to entities in good financial condition. The research study is based on the non-consolidated financial data of selected companies listed on the Warsaw Stock Exchange (on the main or parallel market), obtained from data base *Notoria*. The analysis comprises bankruptcies in 2015–2017. Among the analysed companies, 31 bankrupts are identified (in a legal or economic sense).

The group of bankrupts comprises the following entities:

- those subjected in the analysed period to insolvency or improvement proceedings,
- those recording negative values of equity (economic insolvency; in most cases entities subjected to insolvency or improvement proceedings in the subsequent or the same year).

The conducted analysis comprises the financial data of 18 bankrupts and 18 entities in good financial conditions (representing the same core business and comparable sales revenue and balance sheet total). The selection of data was necessitated by the following factors:

- some of the bankrupts represented a broadly understood financial sector (differences in financial statements),
- no possibility of identifying a matching company representing the same core business or characterised by comparable financial parameters (sales revenue, balance sheet total),
- the commencement of improvement or insolvency proceedings in the first quarter of the analysed year (it is very likely that a financial statement as of 31 December of the previous year accounts for such information, which might distort the results of the analysis).

The analysed entities correspond to the following numbers according to the Statistical Classification of Economic Activities (NACE): industrial processing (NACE: 10–34), construction (NACE: 41–43), wholesale and retail trade (NACE: 45–47), information and communication (NACE: 58–63), activities related to real estate market services (NACE: 68). The structure of the analysed sample is presented in the table below.

Table 1. Structure of analysed companies

Type of activity	Number of analysed companies	Structure of analysed companies (%)
Industrial processing	5	27.8
Construction	5	27.8
Wholesale and retail trade	3	16.7
Information and communication	4	22.2
Activities related to real estate market services	1	5.6
Total	18	100.0

Source: authors' research

The study was conducted in two periods: one year and two years before bankruptcy. Therefore, the financial data covers the years 2013–2016. The first stage of the study analysed mutual correlations between net financial result and operating cash flows generated by the two groups of companies. The further part of the study assessed the companies on the basis of the balances of particular activities

reported in a cash flow statement. The next part of the study presented descriptive statistics for selected economic and financial ratios on the accrual basis (balance sheet and profit and loss account), and the cash basis (cash flow statement). The presented results included average values, median values, standard deviation, as well as first and third quartiles of cash return on assets ratio, asset profitability ratios (with the use of net financial result and result of operating activities), and current liquidity ratio.

4. CASH FLOWS ONE YEAR BEFORE A COMPANY'S BANKRUPTCY

The tables below present cash flows and selected financial ratios in the analysed companies one year before bankruptcy.

Table 2 presents aggregate cash flows from particular types of activity, aggregate net financial results, and aggregate results of operating activities for good companies and future bankrupts. It can be concluded that one year before bankruptcy both groups of companies generated a cash surplus on their core activities. In the case of good companies such a situation is not unusual, but it is extraordinary for future bankrupts (11 failing companies record positive cash flows from operating activities one year before bankruptcy – in most cases the surplus resulted from accumulated depreciation or freed up working capital).

Both groups of companies have outlay costs (as expected, several-fold higher in good companies). Accumulated cash flows from financial activities are similar in both groups of companies. One year before bankruptcy, companies reduced their cash resources by nearly 62m PLN, while good companies recorded a net surplus of 7m PLN.

Significant differences between the analysed groups of companies occur in the accumulated values of their financial results. In this case, the value of equity in future bankrupts was reduced by more than 200m PLN, while good companies recorded an increase by 65m PLN.

Table 2. Accumulated net cash flows and selected categories of financial result in analysed groups of companies one year before bankruptcy (PLN thousands)

Companies	Net cash flows			Net financial result	Result from operating activities
	operating	investment	financial		
Good	157 675	-104 966	-45 776	65 291	109 655
Bankrupt	16 504	-31 408	-46 988	-201 035	-116 916

Source: authors' research

Table 3 presents the variants of cash flow balances in the particular groups of companies. Practically, all the analysed companies which did not face bankruptcy reported operating surplus. Simultaneously, as mentioned above, 61.1% of future bankrupts also reported positive cash flows from core activities. In the majority of cases, operating surplus in future bankrupts resulted from freed up capital (inventory, receivables or trade payables) and depreciation capital.

Four companies threatened with insolvency reported positive balances of investment activities, which may indicate the liquidation of part of their assets in connection with undertaking improvement programmes. It should be noted, however, that similar positive investment-related cash flows were reported by four entities which did not face bankruptcy.

Table 3. Variants of cash flows in analysed groups of companies one year before bankruptcy

Analysed cash flow variant (balance on operating, investment and financial activity)	Good companies	Bankrupt companies	Good companies (%)	Bankrupt companies (%)
1. (+, +, +)	1	0	5.6	0.0
2. (+, -, -)	10	6	55.6	33.3
3. (+, +, -)	2	2	11.1	11.1
4. (+, -, +)	4	3	22.2	16.7
5. (-, +, +)	1	1	5.6	5.6
6. (-, -, +)	0	4	0.0	22.2
7. (-, +, -)	0	1	0.0	5.6
8. (-, -, -)	0	1	0.0	5.6
Total	18	18	100.0	100.0

Source: authors' research

The table below presents relationships between operating net cash flows and net financial result in the analysed companies. It should be noted that 77.8% of entities in good financial condition report positive cash flows from core activities and net profit. None of good companies reports losses accompanied by negative cash flows from operating activities (such a situation occurs in 27.8% of future bankrupts).

Table 4. Net operating cash flows vs financial result in analysed groups of companies one year before bankruptcy

Analysed variant	Good companies	Bankrupts	Good companies (%)	Bankrupts (%)
1. (+NOCF, +NI)	14	5	77.8	27.8
2. (+NOCF, -NI)	3	6	16.7	33.3
3. (-NOCF, +NI)	1	2	5.6	11.1
4. (-NOCF, -NI)	0	5	0.0	27.8
Total	18	18	100.0	100.0

NOCF – net operating cash flows, NI – net income

Source: authors' research

Table 5 presents basic statistics describing analytical ratios reflecting the accrual and cash basis of return on assets (the values of return on sales behaved in a very similar manner, so they are not presented in this paper). To put that in perspective, the paper presents statistics describing static financial liquidity ratios in both groups of companies.

Among the presented rates of return (both on the cash and accrual basis), the highest values of the presented statistics are recorded for the asset productivity ratio. The lowest value in the analysed groups of companies, among the analysed profitability ratios (NOCF/TA, NI/TA – ROA, EBIT/TA) is recorded for ROA. Simultaneously, this ratio – in the group of future bankrupts – is characterised by the greatest changeability measured by standard deviation, by average value and median or by the spread between first and third quartile.

The statistics for the current liquidity ratio show its low changeability (especially in the context of the determined diversified rates of return). In most analysed cases, financial liquidity ratios for future bankrupts are below the level of theoretical standards[2]. On the other hand, the group of companies which do not face bankruptcy comprises a large percentage of entities characterised by theoretically very low or very high current financial liquidity ratios. It is confirmed by the fact that

[2] The issue of normative values for financial liquidity ratios is discussed in: (Maślanka, 2008, pp. 36–44; Niemiec, 2014).

first quartile determined for this ratio in the group of non-threatened companies is below the level regarded in literatures as appropriate. Simultaneously, third quartile is well above the theoretically acceptable standard for this ratio.

Table 5. Statistics for selected analytical ratios describing analysed groups of companies one year before bankruptcy

Description	Good companies				Bankrupts			
	NOCF/TA	NI/TA	EBIT/TA	CA/CL	NOCF/TA	NI/TA	EBIT/TA	CA/CL
Average	7.0	4.3	6.0	2.00	-1.3	-10.8	-5.8	0.78
Median	8.0	3.7	4.0	1.75	2.5	-2.1	-0.6	0.81
Standard deviation	10.5	4.9	6.3	1.15	12.2	19.8	15.7	0.45
First quartile	4.8	1.4	1.8	1.00	-8.6	-15.1	-10.9	0.45
Third quartile	11.3	5.7	8.4	2.68	6.2	1.0	4.8	1.11

NOCF – net operating cash flows, NI – net income, EBIT – result from operating activity, TA – total assets, CA – current assets, CL – current liabilities

Source: authors' research

5. CASH FLOWS TWO YEARS BEFORE A COMPANY'S BANKRUPTCY

The further part of the work presents and discusses cash flows and selected financial ratios in the analysed companies two years before their bankruptcy.

Table 6 presents the accumulated values of cash flows, net financial results and result from operating activities in the analysed companies. The groups of companies differ considerably in terms of results achieved on the accrual basis (similarly to those one year before bankruptcy). Simultaneously, it should be noted that accumulated cash flows from operating activities are comparable, the difference (just like one year before bankruptcy) resulting from the sources of funds. In the case of future bankrupts, most of their funds result from depreciation capital and freed up working capital.

Table 6. Net accumulated cash flows and selected categories of financial results in analysed groups of companies two years before bankruptcy (PLN thousands)

Companies	Net cash flows			Net financial result	Result from operating activities
	operating	investment	financial		
Good	153 752	-178 743	-11 726	60 389	100 655
Bankrupts	133 920	10 663	-108 750	-66 756	26 743

Source: authors' research

The table below presents the balances of particular types of activities in the analysed groups of entities. The majority of companies in good financial condition, similarly to those one year before bankruptcy, achieve positive cash flows from core activities (88.8%). A similar situation occurs in companies threatened with bankruptcy (61.1% of entities generate a surplus from operating activities).

Table 7. Cash flow variants in analysed groups of companies two years before bankruptcy

Analysed cash flow variant (balance on operating, investment and financial activity)	Good companies	Bankrupt companies	Good companies (%)	Bankrupt companies (%)
1. (+, +, +)	0	0	0.0	0.0
2. (+, -, -)	13	6	72.2	33.3
3. (+, +, -)	0	1	0.0	5.6
4. (+, -, +)	3	4	16.7	22.2
5. (-, +, +)	0	0	0.0	0.0
6. (-, -, +)	1	4	5.6	22.2
7. (-, +, -)	0	2	0.0	11.1
8. (-, -, -)	1	1	5.6	5.6
Total	18	18	100.0	100.0

Source: authors' research

Table 8 presents mutual relationships between net financial result and cash flows from operating activities in the analysed groups of companies.

In most non-threatened companies a positive net financial result translates directly to a cash surplus from core activities (83.3%). Such a situation occurs in 1/3 of future bankrupts. Simultaneously, only one future bankrupt records a net loss and negative net cash flow from operating activities – the remaining entities have the ability to generate a net profit or surplus from core activities.

Table 8. Net operating cash flows vs financial result in analysed groups of companies two years before bankruptcy

Analysed variant	Good companies	Bankrupts	Good companies (%)	Bankrupts (%)
1. (+NOCF, +NI)	15	6	83.3	33.3
2. (+NOCF, -NI)	1	5	5.6	27.8
3. (-NOCF, +NI)	2	6	11.1	33.3
4. (-NOCF, -NI)	0	1	0.0	5.6
Total	18	18	100.0	100.0

NOCF – net operating cash flows, NI – net income

Source: authors' research

The table below presents statistics for the analysed ratios in both groups of companies. The greatest differences occur in the case of the net asset profitability ratio and the current financial liquidity ratio. With regard to financial liquidity, most of future bankrupts record lower than standard values. Companies in good financial standing report both very low and very high liquidity ratios. However, most entities are characterised by high values of this measure (average value – 2.88, median – 1.96).

Table 9. Statistics for selected analytical ratios describing analysed groups of companies two years before bankruptcy

Description	Good companies				Bankrupts			
	NOCF/TA	NI/TA	EBIT/TA	CA/CL	NOCF/TA	NI/TA	EBIT/TA	CA/CL
Average	8.0	4.7	6.4	2.88	4.1	-15.4	-0.6	0.90
Median	5.7	5.1	6.9	1.96	2.4	0.4	1.7	0.84
Standard deviation	6.6	6.5	5.0	3.14	9.6	54.9	11.0	0.43
First quartile	3.9	1.7	2.1	1.04	-2.1	-1.4	-1.7	0.67
Third quartile	10.7	8.5	9.9	3.58	5.0	3.4	5.6	1.06

Source: authors' research (symbols as in Table 5)

6. CONCLUSIONS

The considerations presented in this paper point to a significant role of the statement of cash flows in analysing and assessing a company's financial standing. Companies in financial distress are usually characterised by different cash flows from particular types of activities (major differences are seen in net operating and investment cash flows). Although threatened entities report a financial operating surplus in periods preceding bankruptcy, the sources of surplus are different than in the case of good companies. Companies in good financial condition generate a surplus mainly from profits resulting from overall activities, while threatened entities rely on depreciation capital (which translates to minimising investment outlays) and freed up working capital (resulting in the gradual decrease in business activities)[3].

Surprisingly, one year before bankruptcy only a small percentage of future insolvent companies report positive investment cash flows (which might imply their attempts to survive on the market through liquidating excess assets)[4].

In conclusion, a comprehensive and reliable analysis of a company's financial condition should be based on a simultaneous analysis of information provided in the statement of cash flows, a balance sheet and profit and loss account. An analysis exclusively based on one part of a financial statement may, in extreme cases, lead to erroneous conclusions. This statement can be confirmed by the case of the current financial liquidity ratio which is at a very low level in most failing companies, while in good companies it assumes values ranging from very low to very high, regardless of a company's core business or its size)[5].

BIBLIOGRAPHY

Andrzejewski M., Mazur-Maślanka I. (2017), *Memoriałowe a kasowe stopy zwrotu na podstawie przedsiębiorstw przemysłu spożywczego notowanych na GPW w Warszawie*, Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach No. 345, pp. 7–20.

Bowen, R., Burgstahler D., Daley L. (1986), *Evidence on the Relationships between Earnings and Various Measures of Cash Flow*, Accounting Review Vol. 61, No. 4, pp. 713–725.

Carlslaw Ch. A., Mills J. R. (1991), *Developing ratios for effective cash flow statement analysis*, Journal of Accountancy, November, pp. 63–70.

[3] Due to the volume constraints of this publication, the article does not present detailed analyzes of the structure of operational cash flows (net financial result, depreciation, expenses on working capital, other adjustments).

[4] In the author's previous research (Maślanka, 2008, pp. 210-218), the percentage of threatened companies generating positive investment cash flows one year before bankruptcy was indeed much higher, reaching the level of 47.5%.

[5] See: (Maślanka, 2012; Niemiec, 2014).

Casey C., Bartczak N. (1984), *Cash Flow – it's not a Bottom Line*, Harvard Business Review, July/August, pp. 60–66.

Casey C., Bartczak N. (1985), *Using Operating Cash Flow Data to Predict Financial Distress: Same Extensions*, Journal of Accounting Research vol. 1, no. 23, pp. 384–401.

Czekaj J., Dresler Z. (2002), *Zarządzanie finansami przedsiębiorstw. Podstawy teorii*, Wydawnictwo Naukowe PWN, Warszawa.

Figlewicz R. E., Zeller T. L. (1991), *An Analysis of Performance, Liquidity, Coverage, and Capital Ratios from the Statement of Cash Flows*, Akron Business and Economic Review No. 22, pp. 64–81.

Giacomino Don E., Mielke D. E. (1993), *Cash flows: another approach to ratio analysis*, Journal of Accountancy, March, pp. 55–5.

Gilbert L. R., Menon K., Schwartz K. B. (1990), *Predicting Bankruptcy for Firms in Financial Distress*, Journal of Business Finance & Accounting no. 17(1), pp. 161–171.

Gombola M., Haskins M., Ketz J., Williams D. (1987), *Cash Flow in Bankruptcy Prediction*, Financial Management Vol. 16, No. 4, pp. 55–65.

Grabińska B., Grabiński K. (2017), *The impact of R&D expenditures on Earnings Management,* Argumenta Oeconomica Cracoviensa, vol. 17(2017), pp. 53–72.

Grabińska B., Grabiński K. (2018), *Wpływ nakładów na badania i rozwój na rentowność przedsiębiorstw,* Zeszyty Teoretyczne Rachunkowości No. 96(152), pp. 43–62.

Juchau R., Ross P. (1994), *Putting cash into ratios*, Australian Accountant, November, pp. 29-31

Kędzior M. (2010), *Światowe wskaźniki oceny sytuacji kryzysowej*, [in:] B. Micherda (ed.), *Rachunkowość wobec kryzysu gospodarczego*, Wydawnictwo Difin, Warszawa, pp. 138–153.

Kędzior M. (2012), *Nowa forma prezentacji sprawozdań finansowych według wspólnej koncepcji IASB i FASB* [in:] B. Micherda (ed.), *Kierunki ewolucji sprawozdawczości i rewizji finansowej*, Difin, Warszawa, pp. 99–118.

Maślanka T. (2006), *Przepływy pieniężne w analizie przedsiębiorstw z branży budowlanej*, [in:] P. Karpuś (ed.), *Finanse przedsiębiorstwa; instytucje, instrumenty i strategie finansowe w dobie integracji gospodarczej*, Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej, Lublin, pp. 72–81.

Maślanka T., (2008), *Przepływy pieniężne w zarządzaniu finansami przedsiębiorstw*, C. H. Beck, Warszawa.

Maślanka T. (2012), *Wartości krytyczne wybranych wskaźników analizy finansowej – wnioski z badań nad upadłością przedsiębiorstw notowanych na GPW w Warszawie w latach 2000 – 2011* [in:] S. Owsiak (red.), *Stabilność systemu finansowego warunkiem rozwoju gospodarczego, Tom II*, Wyższa Szkoła Finansów i Prawa w Bielsku-Białej, Bielsko-Biała, pp. 206–219.

Mazurczak A., Turek-Radwan M. (2013), *Skuteczność modeli predykcji bankructwa opracowanych w polskich ośrodkach naukowych*, [in:] S. Wawak (ed.), *Metody i techniki diagnozowania w doskonaleniu organizacji*, Mfiles.pl, Kraków, pp. 21–30.

Murty A. V. N., Misra D. P. (2004), *Cash Flow Ratios as Indicators of Corporate Failure*, Finance India vol. XVIII, no. 3, pp. 1315–1325.

Niemiec A. (2014), *Wielkości graniczne statycznych wskaźników płynności finansowej*, Zeszyty Teoretyczne Rachunkowości No. 79(135)/2014, pp. 57–69.

Orliński B. (2013), *Czynniki kształtujące przepływy pieniężne z działalności operacyjnej*, Studia Oeconomica Posnaniensia Vol. 1, no. 12 (261), pp. 73–86.

Sierpińska M., Jachna T. (2006), *Ocena przedsiębiorstwa według standardów światowych*, Wydawnictwo Naukowe PWN, Warszawa.

Sierpińska M., Wędzki D. (2002), *Zarządzanie płynnością finansową w przedsiębiorstwie*, Wydawnictwo Naukowe PWN, Warszawa.

Stefański A., (2012), *Analiza przepływów pieniężnych jako instrument prognozowania upadłości małych i średnich przedsiębiorstw*, Annales Universitatis Mariae Curie-Skłodowska. Sectio H, Oeconomia 46/1, pp. 145–155.

Sylvestre J., Urbancic F. R. (1994), *Effective methods for cash flow analysis*, Healthcare Financial Management.

Tokarski A. (2016), *Model of Eight Cases in the Dynamic Assessment of an Economic Entity Financial Security*, Torun Business Review 15(2), pp. 51–66.
Waśniewski T., Skoczylas W. (2002), *Teoria i praktyka analizy finansowej w przedsiębiorstwie*, Fundacja Rozwoju Rachunkowości w Polsce, Warszawa.
Wędzki D. (2002), *Strategie płynności finansowej przedsiębiorstwa. Przepływy pieniężne a wartość dla właścicieli*, Oficyna Ekonomiczna, Kraków.
Wędzki D. (2003), *Statystyczna weryfikacja istotności przepływów pieniężnych*, Zeszyty Teoretyczne Rachunkowości No. 19(75), pp. 103–119.
Wędzki D. (2008), *Przepływy pieniężne w prognozowaniu upadłości przedsiębiorstwa. Przegląd literatury*, Badania Operacyjne i Decyzje No. 2, pp. 87–104.
Wędzki D. (2010), *Sekwencje przepływów pieniężnych w grupie bankrutów i niebankrutów*, Zeszyty Teoretyczne Rachunkowości No. 57(113), pp. 101–123.
Zeller T., Stanko B. (1994), *Cash Flow and the New Taxonomy of Financial Ratios for Manufacturing Firms*, Southern Business and Economic Journal 17(2), pp. 85–99.

IFRS IN ITALY: SOME HISTORY AND SOME CRITICAL ASPECTS

William NEAL
University of New York in Prague, Czech Republic
weal@unyp.cz

Pietro Andrea PODDA
Anglo American University, Prague, Czech Republic
Pietro.podda@aauni.edu

Abstract
This paper studies the implementation of IFRS/IAS rules in Italy. IFRS rules are to be followed by listed companies in the preparation of their consolidated statements according to the Regulation 1606/02. The introduction of IFRS/IAS to the country has been implemented automatically, according to the very characteristic of EU Regulations which have direct effect and direct applicability. However, introducing international accounting standards in Italy (as for any other country) has not been necessarily straightforward. This is because international rules may conflict with local accounting standards which are embedded into the culture, history and economic background of any country. This may create a clash between valid rules and traditional standards. In the case of Italy, the main challenges have been the introduction of the principle of Fair Value, the redefinition of the principle of Relevance and other aspects discussed in the next pages.

Keywords: *IFRS, Italy, conservatism, Directive*

1. INTRODUCTION

The paper discusses the introduction of IFRS/IAS rules (hereafter IFRS rules) in Italy, where these international principles are binding, in certain cases, on the basis of Regulations and Directives of the European Union. The topic acquires relevance because the introduction' process of IFRS into the various EU countries, while necessary in order to achieve a certain degree of harmonization in the rules on the preparation of financial statements, has found significant challenges because of the differences, and sometimes the incompatibility, between IFRS and national rules (Nobes and Parker, 2010). The introduction of IFRS rules has been accompanied by difficulties which are specific to any single EU countries (Bohušová, and Blašková, 2013; Ball, 2016; Andre', 2017). Researching on the main steps and challenges of the process represents an opportunity to better understand the relationships between international accounting rules and national equivalent ones.
The aims of the paper are:

1) Reconstruct the steps of introduction of IFRS in Italy
2) Identify the challenges related to the main discrepancies between IFRS and Italian national rules

The paper will be organized as follows. The next section will provide a general overview into the creation of IFRS and of their incorporation into EU Law. The second section will provide an insight into the main legislative steps taken by the Italian authorities related to the introduction of EU Accounting rules into the Italian system. The section will also discuss the main challenges related to the introduction of IFRS rules in Italy. Conclusion and references will follow.

2. THE CREATION OF IFRS AND THEIR INCORPORATION INTO EU LAW

International Financial Reporting Standards (IFRS), called also International Accounting Standards (IAS), are international accounting rules devised by an NGO called International Accounting

Standard Board (IASB), previously called International Accounting Standard Committee (IASC) (www.ifrs.org). The introduction of International Accounting Rules is a major necessity in a globalised economy. One of the historical requisite that financial statements are supposed to meet is Understandability, meaning that any person with an average knowledge of financial concepts should be able to read the documents (Alfredson et al., 2009). Considering the huge divergences existing among national accounting rules of countries in the various Continents, it appears clear how the introduction of a common accounting language becomes a necessity in order international investors located in a given country may be able to draw meaningful information when reading the financial statement of a company based abroad. There is a common agreement (and, on a personal note, it could not be otherwise) regarding the necessity of introducing international accounting rules in a globalised economy.

Nevertheless, in spite of a clear recognition, the creation and introduction of International Standards is complicated by two main factors.

1) The first is that national accounting rules are often based on the historical and cultural background of the country using them. Different rules and principles, even when stemming from a compromise with other national standards, may result in distortive results and have a negative impact on the capacity of the reporting company to interact with funding sources in its own country (Nobes and Parker, 2010). Therefore, introducing international rules requires a very delicate balance between the various national interests at stake and the actual effective and reasonable application to rules alien to any given specific national cultural background. The result is that IFRS sometimes ends up leaving open various alternative options to the reporting company.
2) The second factor which complicates the introduction of IFRS is that the setting body itself (IASB) is a Non Governmental Organization. Therefore, its standards do not have force of law and are valid only if directly endorsed by the various competent national authorities. These national authorities may even modify IFRS, this rendering compulsory their own adapted version, For example, IFRS are not compulsory in the USA, whereas in the European Union IFRS are binding only according to the conditions set by the EU authorities themselves.

As for the process of Accounting Harmonization in the European Union, the instrument used had traditionally been the Directive (until 1992 the European Union was named European Economic Community). Examples of these Directives are, for example, the Directive 78/660/EEC on format and rules of Accounting, the Directive 83/349 EEC on Consolidated Accounting, the Directive 2001/65/EC on Fair Value. The awareness of the importance of harmonizing Accounting rules was perceived even during an earlier phase of the European integration process.

The particular characteristics of Directives is that their binding nature on companies depends on the effective implementation of the Directive into national law (Craig and De Burqa, 2015). In addition, the national authorities are fully entitled to integrate the Directive with further rules. Therefore, the Directive 'instrument rests on the intention to provide (more or less precise and detailed) guidelines for Member States which are called to adopt national rules reflecting the Directive' spirit. Consequently, a sloppy or missed enforcement of the Directive risks to put the whole process of harmonization into jeopardy. This is not a purely theoretical problem, as the implementation of Directives have traditionally been a mined territory in the course of the decade.

Conscious of the limitations embedded in the Directive' instrument, EU authorities decided to guarantee the respect of IFRS using a different legal act, named a Regulation. Contrary to Directive, Regulations do not need any national measure implementing them, are automatically valid as legal rules in the EU countries (direct effect), must be respected by the very physical and legal persons in their relationships with other physical and legal persons (horizontal effect) and, consequently, can be invoked by any person during a legal action against another legal person (direct applicability, see Horspool et al., 2016). The EU Regulation 1606/2002 renders IFRS (or, better said, the EU endorsed IFRS, see below) compulsory for the preparation of consolidated statements of companies listed in EU markets. As for the remaining categories of Financial

Statements, the Regulation leaves to the various national authorities the discretion to impose, allow or ban the use of IFRS. The Regulation represents a clear compromise between the intention to introduce common standards and the awareness of the difficulties of imposing their use to all entities operating within the EU.

A further characteristic of the Regulation is that the version of IFRS which becomes compulsory is not the original one as released by the IASB, but the one endorsed by EU authorities, which can amend the original version (and they do it occasionally). The whole process of endorsement is complicated because the process of endorsement requests the cooperation of various committees and the final convergence between the Council and the European Parliament. On the other side, the EU countries and authorities are already involved in the preparation of the original IFRS standards as released by the IASB. This fact makes the whole successive endorsement at EU level easier, as the viewpoint (or viewpoints) of the EU authorities are already taken into consideration by the IASB.

The legislative activity of the EU authorities has continued since the introduction of the Regulation 1606/2002. Providing a complete overview would definitely go beyond the scope of the present paper. Nonetheless, mention is made of the Directive 2013/34, later amended, on disclosure requirements and reporting obligations.

At a national level, while the Regulation 1606/2002 has imposed certain clear and unconditional obligations on companies, the adoption of IFRS is also open to discretional decisions of national authorities and has encountered challenges in any single country (Fifield et al, 2011). The next section will focus on the specific case of a founding member of the European Union (Communities), which is also one of the largest economies in the Continent and in the world: Italy.

3. INTRODUCTION OF IFRS IN ITALY

Italy has a long historical accounting tradition. Francesco Pacioli, a friar and a mathematician of the 15th–16th century, is considered as one of the precursor of the discipline called Accounting. As for modern and contemporary times, Italian Accounting is part of the group called Continental Accounting. In particular, D’Arcy (2001) has classified Italy as a country characterized by accounting rules suitable for companies not relying on impersonal sources of equity as for the supply of funds. Italian companies do not prepare separate statements for the investors’ public and for the Tax authorities. Market-raised Equity, traditionally, has not represented a major share of funding at comparable levels as in the Anglo-Saxon world (Moscariello et al., 2014). Indeed, Italian companies have traditionally developed consolidated relationships with banks, similarly to the German model. In addition, the Italian economy has been characterized by cross-equity relationships among the major players, constantly engaged in mergers, acquisitions and inter-locked shareholdings. For these reasons, the Italian accounting system has developed as a conservative set of rules and principles (Matonti and Iuliano, 2012).

As said, the Regulation 1606/2002, while imposing the use of IFRS (and IAS) for the preparation of the consolidated statements of listed companies, leaves to the EU member states the discretion to order, allow or ban the use of International Standards as for the other types of financial statements (i.e. financial statements of individual listed companies, consolidated statements of unlisted companies). The Italian authorities have regulated the matter with the legislative decree 38/2005. The Italian authorities have significantly expanded the cases when the use of IFRS is compulsory. It appears of importance to remind that the Italian authorities request the use of that version of IFRS endorsed by the EU authorities and not the original one created by the IASB. As Garesio (2016) explains, financial intermediaries and insurance companies listed in financial markets are requested to use IFRS even when they do not prepare consolidated statements. Moreover, the Italian authorities allow the use of IFRS in the individual statements of those companies whose statements are included in the consolidated statements of groups requested to use IFRS.

A further important piece of Italian legislation is the legislative decree 394/2003 introduced to implement the Directive 2001/65. This decree indicates the requisites that accountants are to respect when indicating information on the Fair Value of Financial Instruments in the Notes. The Fair Value evaluation has been allowed according to conservative principles, because the Fair Value evaluation of financial instruments is prescribed only in the Notes (as mandated by the EU Directive), whereas this particular technique is not even allowed (let alone prescribed) in the preparation of the Balance Sheet. A conservative attitude, as said earlier, is a characteristic of the Italian system and the very concept of Fair Value is not part of the national traditional accounting principles.

A further important legislative act is the legislative decree 91/2014 which has allowed the use of IFRS/IAS to the large majority of operating companies' types (the relevant criterion is the size of the company). This step seems to represents a real movement towards a complete allowance of adoption of international standards in Italy. However the number of companies still not allowed to use IFRS (hence falling into the exception to the rule of the decree 91/2014) is not irrelevant, considering the importance of small and micro-companies in the composition of the Italian economic system.

We will now move to discuss the importance of the legislative decree 139/2015 which aims at implementing the Directive 2013/34, which, among others, has introduced some novelties regarding the very structure and format of financial statements, in order to make them more consistent with international standards. Nonetheless, greatest contribution of the decree 139/2015 is represented by the centralisation of the principles of Relevance, still not really embedded in the Italian conservative accounting tradition. The principle of Relevance is already incorporated into the Directive 2013/34 (and is in any case part of the principles underpinning IFRS/IAS), nonetheless the very Directive leaves room for discretional choices as for its implementation. This is understandable, in view of the trickiness embedded in the practical applications of the principle. The Italian legislator integrates the principle of Relevance adding that in case the information should be "true and correct:, which sounds like a warning against abuses of the use of the very principle. A further characteristic of the principle of Relevance, as incorporated in the Italian legislation, is that it extends also to the collection and evaluation of the information. This may eventually appear as an ambitious legislative decision in a system characterized by conservatism, nonetheless, as said by Nobes and Parker (2010), it is difficult to establish clear and rigid categories of countries classified as for the characteristics of their accounting system. Overall, Garesio (2016) considers that the Italian rules seeks to find a compromise in the tricky labyrinth of Relevance, respecting the principle and, at the same time, prescribing that certain items not reported in the main statements may actually be reportable in the notes.

Yet another important aspect of the legislative decree 139/2015, implementing the Directive 2013/34, is the reformulation of the principle according to which substance prevails over form (which is also an integral part of the IFRS "philosophy). The typical example of this principle is the capitalization of assets acquired through financial leasing. The peculiarity of the Italian implementing act is that the rationale and the full effects of the application of the principle must be explained in the notes. The last aspect of the decree we discuss is the introduction of the principle of Fair Value to evaluate Derivative Financial Instruments (i.e. Options, Futures).There are also limits regarding the possibility to calculate appreciation of the Fair Value of Derivatives as for the distribution of profits and the accumulation of reserves. These particular restrictions suggest a certain level of prudence from the side of the Italian national authorities, in view of the extreme volatility of the price of certain financial instruments. The use of the Fair Value in the evaluation of derivatives is also not allowed to certain companies, viz. micro-companies. The reason is also understandable: these companies have relatively modest resources and their reported revenue and assets could be largely affected, either directions, by significant oscillations in the estimated Fair Value of the instruments. These oscillations in the estimation are actually often grounded in the intrinsic volatility of the instruments, but can also be the result of opportunistic choices made by accountants. Eventually, unscrupulous accountants may rely on the wide room of discretion in the

evaluation of the Fair Value of certain Derivatives to escape investigations. These behaviours can occur and have actually occurred also with large companies, however the distortive effect on the financial statements would be proportionately larger in case of micro-companies.

4. DISCUSSION AND CONCLUSION

Overall, the examples analyzed above leave room for some remarks. The introduction of IFRS principles and rules has represented a challenge for the Italian authorities. A conservative system, where the local rules were not thought for companies providing information to important and small external investors is not really in harmony with the contemporary globalised economic system IFRS are devised for. Nevertheless, the Italian authorities have attempted at finding a compromise between the new requirements and the characteristics of the Italian economy. Sometimes the Italian authorities have extended the use of IFRS further than the extent EU rules requested. Nonetheless, an important share of the Italian economy is still based on micro-companies. These latter are usually allowed to avoid or are actually banned from using IFRS.

BIBLIOGRAPHY

Alfredson, K., Leo, K., Picker, R., Pacter, P., Radford,J. and Wise V. (2009) International Financial Reporting Standards. John Wiley and Sons: Milton, Australia.

André, P. (2017), "The role and current status of IFRS in the completion of national accounting rules–Evidence from European countries". Accounting in Europe, *14*(1–2), 1–12.

Ball, R. (2016), "IFRS–10 years later. Accounting and Business Research", *46*(5), 545–571.

Bohušová, H., & Blašková, V. (2013), "In what ways are countries which have already adopted IFRS for SMEs different", Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, *60*(2), 37–44.

Craig, P. and de Burqa, G. (2015) EU Law text cases and materials. Oxford University Press: Oxford.

D'Arcy, A. (2001) "Accounting classification and the international harmonisation debate – an empirical investigation", Accounting, Organizations and Society, Vol. 26 (4–5), 327–349.

Fifield, S., Finningham, G.; Fox, A., Power, D. and Veneziani, M. (2011) "The implementation of IFRS in the UK, Italy and Ireland", Journal of Applied Accounting Research; Leicester Vol. 12(1), 26–42.

Garesio, G. (2016), "Il Recepimento della Direttiva 2013/34 UE: il progressivo allineamento delle disposizioni contabili racchiuse nel codice civile ai principi IAS/IFRS", Rivista ODC, vol.2 (1), 1–32.

Horspool, M., Humphreys, M. and Wells-Greco, M. (2018) European Union Law. Oxford University Press: Oxford.

Matonti, G. and Iuliano, G. (2012), "Voluntary Adoption of IFRS by Italian Private Firms: A Study Of The Determinants Eurasian Business Review", Heidelberg Vol. 2(2), 43–70.

Moscariello, N, Skerratt, L and Pizzo, M. (2014). "Mandatory IFRS Adoption and the cost of debt in Italy and UK", Accounting and Business Research; Abingdon Vol. 44 (1), 63–82.

Nobes, C. and Parker, R. (2010) Comparative International Accounting. Financial Times: Prentice Hall.

THE EFFECTS OF IMPLEMENTATION OF IFRS 9 IN FINANCIAL STATEMENTS OF BANKS IN POLAND

Mariusz ANDRZEJEWSKI, Patryk DUNAL, Paweł OŻGA
Cracow University of Economics, Poland
andrzejm@uek.krakow.pl, patrykdunal@uek.krakow.pl, p.ozga@interia.pl

Abstract
The development of financial markets results in the appearance of new one and continuous improvement of the existing forms of liabilities, in particular financial instruments, which are used by entities to an increasing range. The use of financial instruments in the operational activity of business entities has a significant and direct influence on their financial situation. Financial instruments may be used for investment or financial purposes as well as an hedging instrument protecting against various types of risk (including price risk) and for stabilizing financial results. A particular challenge of modern accounting is the correct valuation of financial instruments, their identification and presentation in the financial statements to follow the accounting rules, in particular the principle of a faithful and reliable image.
The constantly developing international markets, the growth of economic development and international exchange are the reason for changes also in the scope of classification and valuation of financial instruments in the accounting standards. This is particularly evident in the banking sector, in which the implementation of IFRS 9 (instead of IAS 39) from 1 January 2018 resulted in tremendous changes in some positions in the financial statements of individual banks operating on the Polish market. The purpose of this article is an indication of changes of the principles of identification and valuation of financial instruments caused by the implementation of IFRS 9 and a presentation of their effects in the banking sector in Poland on the example of selected banks.

Keywords: *financial instruments, valuation, IFRS 9, banking sector*

1. INTRODUCTION

Financial instruments area is one of the most difficult and challenging in Accounting (da Paixao Duarte, Saur-Amaral, do Caro Azevedo, 2015). There is no any other topic which would be addressed by so many standards (IAS 32, IAS 39, IFRS 7, IFRS 9 and IFRS 13, Kenneth, Grazyina, 2013, Cai, Wong, 2010). International Accounting Standard 39 (IAS 39) which by the end of 2017 regulated accounting of financial instrument was widely criticized, mainly for its complexity and not fitting to market conditions. After few years International Accounting Standards Board (IASB) released International Financial Reporting Standard 9 which on 1 January 2018 replaced IAS 39. There are big expectations related to the new standard as it is designed to eliminate or at least reduce most of IAS 39 imperfections. However, considering revolutionary character of some changes incorporated in IFRS 9, its implementation is likely to cause one-off, rather material impact on statements of financial position, especially in banks.

2. CRITICS OF IAS 39 AND HOPES RELATED TO IFRS 9

International Accounting Standard 39 (IAS 39) was widely criticized for its complexity and not reflecting economic reality. Some even claimed that IAS 39 and its American equivalent – FAS 133 were one of the main causes of 2008 financial crisis (Huian, 2012). Such statement is probably too strong, but one must agree accounting standards played some role in recent crisis. Fair value accounting caused large volatility in banks statement, but it looks like it was not the main cause. It’s the credit risk which was not reflected properly in financial statements triggered the crisis. The

problem is, that under recent regulations (incl. IAS 39) impairment on loans was recognized only when a loss was incurred. Therefore there was no pressure to monitor the credit risk of existing portfolios. Moreover, many instruments were linked to credit risk like collateralized debt obligations (CDO), credit linked notes (CLN) or credit default swap (CDS). Possibility of measurement at cost when fair value is not available or not possible to reliably calculate allowed the "credit bomb" to tick without being noticed. Moreover, hedge accounting under IAS was too complex and rigid so many companies and banks simply did not use this model (which is still voluntary) which may even resulted in misleading investors as hedging instruments were presented in the same way as speculative. Therefore changes to accounting of financial instruments must be introduced and IFRS 9 was supposed to be an answer to IAS 39 disadvantages.

IFRS 9 is expected to reduce complexity of financial instruments accounting and make it more understandable. As a result the quality of information in periodical financial reports should improve. The new standard addresses the issue of credit risk which is important especially in banks. Switching from incurred to expected losses model should inform earlier about potential problems with loan portfolio and prevent the situation of recognizing huge loss as they will be spread over time. Therefore quality and usefulness of financial statements should improve. Many others benefits are expected from IFRS 9. Under this standard accounting is aligned with the business strategy which is in line with true and fair view concept. It is more focused on various stakeholders as requires extensive disclosures in case of any changes to the business model (Gornjak, 2017). Changes made to hedge accounting should simplify this model and make it more attractive, but it must be stressed some problematic issues were not solved and remained the same as in IAS 39.

IFRS 9 has also some disadvantages or concerns connect with its implementation. The main issue is an increase in profit and loss volatility and additional complexity connected with credit risk assessment for impairment testing (Reitgruber, 2016). Moreover it increases the scope of professional judgment in accounting and reduces comparability between entities as they may have different business model for managing similar financial assets. So the new standard is not a perfect solution, but still addresses some of main disadvantages of IAS 39. Comprehensive evaluation of IFRS 9 vs IAS 39 will be probably possible in few year. So far it looks promising but reality will verify this, as always.

3. CRUCIAL CHANGES FOR BANKING SECTOR

From the point of view of the banking sector very important are changes in the classification of financial instruments, in particular financial assets. So far, according to IAS 39, they were classified into one of four categories:

- Financial assets at fair value through profit or loss,
- Investments held to maturity,
- Loans and receivables,
- Financial assets Available-for-sale.

The classification determines the method of valuation of a given contract. Investments held to maturity as well as loans and receivables were measured at amortized cost, while others were measured at fair value, if it could be reliably estimated.

Above division was determined by the intention of entity in relation to the given instrument. The criteria classification were not clear or unambiguous, and often the same instrument could be included in various categories. The intent regarding the purpose of the instrument may have changed since initial designation while IAS 39 limited the possibility of reclassification between

certain categories. Therefore, the rules for classifying financial instruments have been radically changed in IFRS 9. Currently, the classification depends on two factors (IFRS 9, 2016, par. 4.1.1):

1. The entity's business model for managing financial assets and
2. The contractual cash flow characteristics of the contract.

The new standard introduced 3 categories of financial assets (IFRS 9, 2016, par. 4.1.2–4.1.3):

1. Financial assets measured at amortized cost,
2. Financial assets at fair value through other comprehensive income (FVTOCI),
3. Financial assets at fair value through profit or loss (FVTPL).

Financial assets are measured at amortized cost if they are held within a business model whose objective is to hold financial assets in order to collect contractual cash flows and the contractual terms of such instrument give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding (IFRS 9, 2016, par. 4.1.2). In banks loans granted will be usually classified to this category.

A financial asset is measured at fair value through other comprehensive income if both of the following conditions are met (IFRS 9, 2016, par. 4.1.2A):

1. Financial asset is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial asset and
2. The contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

For this category banks will usually classify bonds, which under IAS 39 were classified either as loans and receivables or financial assets available for sale.

Financial assets that do not qualify for any of the above categories are classified as financial assets at fair value through profit or loss. However an entity may make an irrevocable election at initial recognition for particular investments in equity instruments that would otherwise be measured at fair value through profit or loss to present subsequent changes in fair value in other comprehensive income.

Under IFRS 9 only amortized cost or fair value may be used to measure financial instruments. It is not possible to recognize financial assets at the purchase price. Therefore, financial assets measured at purchase prices under IAS 39 will have to be remeasured at fair value, based on estimates. This may increase the volatility of financial results.

From banks perspective, changes in the classification of financial assets should not cause significant changes neither in their statements of financial position nor in statements of income. The vast majority of bank assets consist loans granted, which should usually be valued at amortized cost. It can be argued that the more complex financial instruments a bank uses, the greater the changes in the classification of these instruments may be.

From the point of view of banking sector the key change implemented by IFRS 9 relates to the impairment of financial assets. The new standard introduced a model of expected credit losses while its predecessor – IAS 39 referred to the incurred losses model. According to IAS 39, the entity was required to assess at each balance sheet date whether there is any objective evidence of impairment of a financial asset. In case of such evidence, the amount of impairment loss was determined as a difference between the carrying amount and the present value of expected future cash flows, excluding future loan losses that were not incurred. This approach took into account only the losses actually incurred, and therefore the impairment of the bank's assets was recognized post factum and had neither predictive value (Marton & Runesson, 2017) nor preventive function. It only reflected the incident that had already taken place.

IFRS 9 has fundamentally changed the approach to impairment measurement. From January 1, 2018, entities are required to recognize write-offs for expected credit losses, which were bypassed according to IAS 39. As a consequence, business entities, and banks in particular, must monitor the credit risk associated with the controlled financial assets on an ongoing basis. IFRS 9 makes the method of determining impairment write-downs dependent on changes in credit risk. If this risk related to a given instrument is significantly larger than at initial recognition, the provision for expected credit losses is determined for the entire life of the instrument (IFRS 9, 2016, par. 5.5.3). However, if the credit risk did not increase significantly since the initial recognition, the write-off for expected credit losses should be created anyway, but in the amount equal to the 12-month expected credit loss (IFRS 9, 2016, par. 5.5.5).

Change in the approach to impairment will have wide consequences. It will certainly complicate the process of estimating write-offs. In addition, it will increase the significance of assumptions and estimates, especially when it comes to assessing material deterioration in credit quality (Bholat et al., 2018). This in turn means higher subjectivity of estimating provisions for credit losses because they are based on future-oriented and probability-weighted information (Beerbaum and Piechocki, 2017). As a consequence, the comparability between the financial statements of individual banks will be lower due to the assumptions made and the possibility of using different models[1]. Moreover, these changes will increase write-offs and provisions, and on the one hand, it can be seen as the implementation of the precautionary principle. But on the other hand, their volatility in financial reports will also increase, as the macroeconomic situation and forecasts will also have an impact on their value.

4. ONE-OFF EFFECTS OF IFRS 9 IMPLEMENTATION AND IMPACT ON CAPITAL ADEQUACY

IFRS 9 should be applied retrospectively. This means that on January 1, 2018, companies must convert their financial statements as if IFRS 9 was effective in earlier reporting periods. Therefore, entities, banks in particular, are obliged to classify all financial assets and liabilities according to the new standard and if there are differences from IAS 39, for example, different valuation method or recognition of changes in value, make appropriate adjustments. Corrections resulting from the implementation of IFRS 9 will be recognize in retained earnings or another component of equity. For example, if a specific financial asset was measured at amortized cost according to IAS 39 and in line with IFRS 9 at fair value through other comprehensive income, the adjustment would change the retained earnings by amounts recognized in profit or loss in previous years and the revaluation reserve changes will be adjusted with accumulated changes in fair value from the moment the asset was recognized in the books.

The retrospective application of provisions regarding impairment of financial assets may be much more problematic. The expected loss model requires that banks should estimate the credit risk of each asset as at the date of recognition in the books and compare it with the credit risk as of the standard's implementation date. This is crucial for determining whether there has been a significant increase in credit risk and for what period the expected losses should be taken into account. If it would require excessive costs or would be impossible, IFRS 9 in line with the precautionary principle requires that a write-off should be recognized in an amount equal to the expected credit losses throughout the entire life of the instrument until the moment of discontinuation of its recognition in the books. Changes in the amount of impairment losses recognized until the effective

[1] The problem of comparability of financial data of companies listed on the Warsaw Stock Exchange was presented by: Andrzejewski, Maslanka, Mazur-Maślanka (2016).

date of IFRS 9 adjust the balance of retained earnings. From this moment, impairment losses will be recognized in profit and loss.

The one-off effects of implementing IFRS 9 are rather negative as they will most probably cause decrease in assets and equity. However Marshall (2015) argues that benefits outweigh the costs of IFRS 9 implementation. Cost mean not only expenses for changing accounting software, staff trainings etc. but also negative changes in banks' financial position. Potential benefits are rather expected in a longer term in a form of better quality of information reported to the public, improved risk management, lower risk or more stable financial system.

Change in the model of calculating financial assets impairment will have material impact on banks' equity. This will consequently negatively affect capital adequacy (Krüger et al., 2018). It may be a serious problem for the whole sector as it may raise concerns about stability of banking sector and trigger recapitalization or asset portfolio reorganization. The issue has been addressed by European Parliament and EU Council which, in Regulation No. 2017/2395, introduced transitional arrangements aimed at easing the impact of IFRS 9 on equity. They give banks the opportunity to include in their Tier 1 capital a certain amount of provisions for expected credit losses created during implementation of IFRS 9. This is possible for a maximum of five years starting from 2018. Under the regulation, banks may increase Tier 1 capital in subsequent years by a portion of the balance of retained earnings and revaluation reserve arising from the implementation of IFRS 9 as follows:

- in 2018 by 95%,
- in 2019 by 85%,
- in 2020 by 70%,
- in 2021 by 50%,
- in 2022 by 25%.

The adjustment of Tier 1 capital due to provisions for expected credit losses is gradually reduced to zero, so that in 2023 at the latest the banks' capital adequacy ratios will take into account the full effect of implementing IFRS 9. It should be emphasized that this facilitation concerns only the calculation of capital requirements. Equity shown in the financial statements includes the entire impairment provision due to expected credit losses and no simplifications are allowed here.

5. LITERATURE OVERVIEW

IFRS 9 is a new topic and still unexplored in literature. However, some authors took an effort to evaluate it. Novotny-Farkas (2015) claims that IFRS 9 better reflects credit quality of financial assets and enhance financial stability. This is achieved mainly thanks to implementing expected credit losses model. Higher provisions will reduce risk through preventing from recognition of excessive impairment in crisis and overstatement of regulatory capital in boom periods. Moreover earlier impairment will decrease the possibility of distributing overstated profits as bonuses and dividends which in fact should improve capital adequacy and banks' security. Continues recognition of expected credit losses instead of random recognition of incurred losses (usually in crisis when profits are already lower) should smooth financial results and thus reduce procyclicality. This effect combined with extended disclosures required by IFRS 9 is likely to improve transparency and enhance financial stability. So IFRS 9 is designed to inform investors and regulators about credit risk of banks' portfolios. Earlier credit loss recognition should reduce the probability of sudden, one-time negative impact on P&L which may cause an insolvency and act as

a catalyst for financial system destabilization (like Lehman Brothers case). This is a rational conclusion but relates to long term effects which could be verified in few years.

Cipullo and Vinciguerra (2014) pointed out that IFRS 9 does not address the issue of liquidity of financial instruments. This is a weakness of new standard which is intended to improve financial stability and prevent crises in the banking sector. But 2008 crisis was escalated by low liquidity of some financial instruments, and therefore fair value may not be the best option to use. This is good point suggesting direction for future work on accounting of financial instruments. However, it’s difficult to develop a complex solution which will solve all problems at once as in time new, unknown before issues arise. So IFRS 9 is not a perfect standard which will prevent crises, but is a step in right direction and should support financial stability in the banking sector.

Levy and Zhang (2018) expect IFRS 9 will increase reactiveness to the credit cycle so reduce banks risk. New standard improves also quality and usefulness of information in financial statements as it addresses “too-little, too-late” problem. In other words expected credit loss model allows to show more realistic provisions and assets value and disclose them earlier to the public. So IFRS 9 may be perceived as a warning tool. However Levy and Zhang claim that the standard will probably increase volatility of allowances, earnings and capital. This is questionable, as earlier, partial recognition of expected losses will in fact smooth earnings because it mitigates the risk of huge write-offs at one period as it is spread across longer period. The issue is that profits and equity will be reduced by those provisions which in fact may not materialize. However, higher prudency is in line with main accounting principles and seems to be small price for financial sector stability.

IFRS 9 is effective starting from 1 January 2018 so there is virtually no literature discussing its implications for banks financial situation. However before its implementations some studies were conducted in order to assess possible implications of new standard. European Banking Authority did an exercise in 2016 and 2017 in which it tried to estimate possible impact of IFRS 9 on banking sector. The necessity of reclassification was not considered material as only limited reclassification was expected. Under IAS 39 on average 76% of banks’ financial assets were measured at amortized cost, 14% at fair value through P&L (FVTPL) and 10% at fair value through other comprehensive income (FVTOCI). After implementing IFRS 9 it was assessed that still 76% of financial assets will be measured at amortized cost, 16 at FVTPL and 8% at FVTOCI. So new classification rules should have rather marginal impact on banks financial position. Two main concerns connected with IFRS 9 were higher impairment provisions and deterioration in capital adequacy. On the average European banks expected that impairment provisions under IFRS 9 will be on average 13% higher than these under IAS 39. This will automatically impact capital adequacy ratios, Common Equity Tier 1 (CET 1) ratio was expected to fall on average by 45 bps as a consequence of implementing new standard. Average decrease in total capital ratio was estimated at 35bps (EBA, 2017).

Ernst & Young (2017) conducted a survey of 29 major banking institutions from the US, Canada, EU and Australia. Results are similar to EBA research. Respondents expected an increase in provisions up to 15% and decrease in CET 1 ratio by up to 25 bps. So the biggest institutions seemed to be well prepared for IFRS 9 and did not expected revolutionary changes in their financial statements and capital adequacy.

Mazars (2018) analyzed impact of implementing IFRS 9 in a sample of 30 largest European banks. Based on quarterly financial statements they discovered deterioration in CET 1 ratio on the average by 24 bps, where Intesa reported the biggest decrease of 102 bps while one bank – Royal Bank of Scotland reported an improvement in CET 1 ratio by 30 bps.

6. HYPOTHESIS DEVELOPMENT AND IFRS 9 IMPLEMENTATION IN POLISH BANKS

Many expected effects of implementing IFRS 9 like for example impact on financial stability or volatility of profits or assets may be assessed only after few years. However, one-off outcome of switching from IAS 39 to IFRS 9 is measurable and may be examined. Analysis of new rules and existing literature suggests that conversion of financial statements should result in decrease in assets value, mainly due to additional impairment provisions rather than reclassification of financial assets, decrease in equity and deterioration of capital adequacy. Therefore the paper will verify the following hypothesis:

1. Implementation of IFRS 9 resulted in decrease of banks' assets,
2. Implementation of IFRS 9 resulted in decrease of banks' equity,
3. Changes in financial instruments classification were not material,
4. Expected credit losses model caused significant increase in banks' impairment provisions,
5. Implementation of IFRS 9 caused deterioration of capital adequacy,
6. Transitional arrangements of European Parliament and EU Council partially mitigated negative impact of IFRS 9 on capital adequacy.

Above hypothesis are tested at 5% significance level. Null hypothesis assumes IFRS 9 had no impact on assets, equity, provisions and capital adequacy ratio. Alternative hypothesis are as defined above. Statistical rejection of null hypothesis at 5% confidence level will attest negative impact of IFRS 9 on assets, equity, provisions or capital adequacy ratio.

According to the Accounting Act banks in Poland are obliged to use International Financial Reporting Standards. As a consequence of IFRS 9 implementation Polish banks faced the challenge of reviewing their balance sheets and changing the valuation rules for some assets as well as increasing provisions. Financial statements transformation from IAS 39 to IFRS 9 resulted in significant adjustments to assets and liabilities and equity (mainly retained earnings).

The assessment of IFRS 9 impact on the Polish banking sector was conducted on a sample of 12 banks listed on the Warsaw Stock Exchange, which are in fact the largest entities in this sector. According to data of the National Bank of Poland, the assets value of banking sector in Poland at the end of March 2018 amounted to PLN 1,814 trillion (NBP, 2018). The value of assets in the sample of banks at the end of March 2018 amounted to PLN 1 258 trillion, which is 69% of the entire sector in Poland. Table 1 presents the basic characteristics of analyzed banks at the end of the first quarter of 2018.

Table 1. Basic characteristics of analyzed banks at end of 1st quarter 2018 (million PLN)

	Average	Standard deviation	Median	Max.	Min.
Assets	104 866	79 339	72 465	295 095	19 411
Equity	12 086	10 629	7 382	36 557	1 810
Liabilities	92 780	68 977	65 432	258 538	17 601
Financial leverage (D/E)	8.8	2.6	8.7	15.0	5.3
Total capital ratio	16.9%	3.1%	16.4%	24.4%	13.6%

Source: financial statements of Polish banks

The sample includes banks of various size and risk. Assets of the largest bank were over 15 times higher than the smallest one. Financial leverage also differs significantly. The total capital ratio

varies between 14% and 24%. Its average value and median suggest that the capital adequacy of most banks is rather closer to the lower level.

The implementation of expected credit losses approach by IFRS 9 resulted in the necessity of creating additional impairment provisions. In addition, changes in the classification principles may have resulted in a change in the valuation principles (e.g. from amortized cost to fair value) and recognition of additional gains and losses. These changes adjust retained earnings or revaluation reserve. Therefore, the implementation of IFRS 9 is likely to affect the level of banks' financial leverage (risk) and the level of capital adequacy. As a consequence some banks may require to be recapitalized. The analysis and assessment of IFRS 9 effects in the group of banks in Poland is presented below. Table 2 contains a summary of changes in equity in the sample.

Table 2. IFRS 9 impact on banks' equity

	Change in revaluation reserve	Change in retained earnings	Change in total equity
Average (million PLN)	16.7	-419.9	-403.2
Standard deviation (million PLN)	76.5	303.9	272.1
Number of banks reporting the change	9	12	12
p-value	77.5%	0.00008%	0.00001%

Source: financial statements of Polish banks

IFRS 9 caused changes in both the revaluation reserve as well as in retained earnings. Changes in revaluation reserve were caused by different classification which in turn triggered different valuation rules (e.g. switch from amortized cost to fair value). Such changes were reported by 9 out of 12 analyzed banks, however the average value of these changes is statistically insignificant. This means that the change in classification of financial instruments did not have a material impact on the statement of financial position of polish banks. Some banks reclassified some items from the categories measured at amortized cost to those measured at fair value. However, the value of such amendments was not material. This is in line with European Banking Authority estimates (EBA, 2017).

On the other hand the impact of IFRS 9 on retained earnings and total capital turned out to be significantly different from zero, and the probability that IFRS 9 did not affect the change in capitals is below 0.0001%. The adjustment of retained earnings results from a change in the approach to impairment of financial assets. In this area IFRS 9 caused the largest changes in the balance sheets of Polish banks. The transition to the model of expected credit losses caused the necessity to make additional write-offs with an average value of approx. PLN 420 million (including deferred tax). The largest write-offs in absolute terms were made by Pekao (PLN 957 million) and the smallest by Citibank Handlowy (PLN 75 million). In relative terms, banks in Poland impaired on the average additional 0.56% of their assets, which is statistically significant (p-value 0.0002%). Getin Noble is the bank which wrote off the largest share of controlled assets, namely 1.4%. On the other hand BZ WBK was the one reporting the lowest additional impairment of only 0.1% of possessed assets.

Decrease in equity is likely to have a negative impact on the bank's security through higher financial leverage and may result in the need of recapitalization as a result of deterioration in capital adequacy ratios. Table 3 summarizes the effects of implementing IFRS 9in analyzed group of banks.

Table 3. Effects of implementation of IFRS 9 in Polish banks

	Average	Standard deviation	p-value
% change in assets	-0.53%	0.45%	0.003%
% change in equity	-5.34%	5.39%	0.03%
Change in financial leverage (D/E)	0.52	0.71	0.54%
Change in total capital ratio in 2018	-0.09%	0.12%	0.29%
Change in total capital ratio without transitional arrangements	-0.98%	1.18%	0.20%
Improvement in total capital ratio due to transitional rrangements	+0.89%	1.18%	0.47%

Source: financial statements of Polish banks

In relative terms, IFRS 9 caused a decrease in bank assets (due to a change in classification, valuation principles and impairment model) on average by 0.53%. This is a statistically significant change because the p-value is only 0.003%. The largest drop was reported by Getin Noble (1.3% of assets) and the lowest by BZ WBK (0.16% of assets).Equity capital in the analyzed group fell by an average of 5.34%, with Getin Noble (-17.9%) showing the biggest decrease, and BZ WBK and Citibank Handlowy the lowest (-1.1%). This is a statistically significant change as p-value is 0.03%.

IFRS 9 caused an increase in financial leverage measured as debt to equity ratio. On average in the surveyed group, the D/E ratio rose by 0.52. Its average value before the implementation of IFRS 9 was 8.3 and after implementation of the standard increased to 8.8. The highest change occurred in Getin Noble (+2.5 to level 15.0) while the lowest was recorded by BZ WBK and Citibank Handlowy (+0.05 to the levels of 5.6 and 5.3 respectively). The impact of IFRS 9 on the level of financial leverage turned out to be statistically significant (p-value only 0.54%).

The implementation of IFRS 9 resulted in deterioration of capital adequacy. Total capital ratio fell by 0.1%, which turned out to be a statistically significant change (p-value 0.29%). However, it does not reflect the full effect of IFRS 9 regulations as the European Parliament and EU Council adopted transitional arrangements allowing to mitigate negative impact of new standard on capital adequacy. In analyzed sample, only 2 banks (Citibank Handlowy and mBank) decided to include the full effect of IFRS in capital adequacy calculations already in the first year. The remaining 10 banks took advantage of the possibility to apply transitional arrangements, which means that for the purposes of calculating capital adequacy ratios in 2018 they accounted only for 5% of capital changes resulting from the implementation of IFRS 9. If transitional arrangements were not applied, the average capital adequacy ratio in the analyzed sample would have decreased by 0.98%, i.e. the change would be 11 times higher than actual, reported by banks in their financial statements. This means that in 2018 Polish banks improved their ratios by 0.89% on average, which is statistically material change (p-value 0.47%). However, it should be remembered that in subsequent years capital adjustments will be falling and after 5 years the full effect of implementing IFRS 9 will be taken into account in capital adequacy ratios of all banks.

Deterioration in total capital ratio of 98 bps resulting from including full effects of IFRS 9 seems to be quite high comparing to 35bps estimated by European Banking Authority (EBA, 2017). Moreover, there is no universal model for assessing credit risk so different banks may recognize different impairment for similar portfolios. And changes in macroeconomic environment may also influence the final write-offs. Therefore volatility of capital adequacy ratios is likely to increase under IFRS 9.

7. CONCLUSIONS

IFRS 9 significantly changed the accounting principles for financial instruments. The new classification rules were to simplify the existing IAS 39 standard and it seems this objective has been achieved. Reclassification of financial assets caused some changes in banks' statements of financial position, but their value is not significant. On the other hand, change in approach to impairment of financial assets can be considered revolutionary. The departure from the incurred losses model to the expected credit losses model means a more cautious approach and consequently higher impairment provisions. In the sample of Polish banks surveyed, additional revaluation write-offs were statistically significant and caused a decrease in the value of owned assets by an average of 0.5%. This resulted in one-time decrease in retained earnings.

The decrease in equity caused an increase in the financial leverage, which means that banks may be perceived as more risky. In addition, capital adequacy has been reduced. Thanks to the application of transitional arrangements, the banks avoided a drastic deterioration of capital adequacy in the first year. However each year the effect of implementing IFRS 9 will be gradually taken into account so banks with low credit portfolio quality are likely to face the necessity for recapitalization because they have recorded the highest additional impairment. These write-offs will successively reduce their capital and, without decreasing the credit risk of controlled assets they may fail to meet the adequacy requirements.

In summary, the implementation of IFRS 9 had a negative impact on Polish banks, as it resulted in a significant depletion of their capital. On the other hand, it should be expected that the new standard will simplify the accounting principles of financial instruments and improve the quality of information about financial condition of banks. In particular, the model of expected credit losses is expected to improve the quality of information about the risks taken by the banks and to prevent the repetition of the 2008 crisis[2]. Decreasing equity and capital adequacy ratios should force banks to manage risk better and improve the quality of their assets. Bearing in mind the effects of the subprime crisis in the US and the potential costs of saving banks by state institutions, it seems that the capital shortfall is not an excessive price for the stability of the financial system. Especially if these costs are borne by entities i.e. banks that usually undermine this stability.

BIBLIOGRAPHY

Andrzejewski, M., Maślanka, T. & Mazur-Maślanka, I. (2016). *International Financial Reporting Standards (IFRS) and an issue of comparability of assessments of financial standing of the companies listed on the Warsaw Stock Exchange made by the auditors in the reports on the audit of the financial statements*, [in:] "IFRS: Global rules & local use", proceedings of the 4rd international scientific conference, Prague, Anglo-American University, Prague – Czech Republic, 56–65.

Andrzejewski, M. & Maślanka, T. (2015). *Procedures of an audit in the prospective verification of the going-concern principle*, [in:] "IFRS: Global rules & local use", proceedings of the 3rd international scientific conference Prague, Anglo-American University, Prague – Czech Republic, 49–59.

Beerbaum, D. & Piechocki, M. (2017). *IFRS 9 for financial institutions – the case for IFRS and FinRep-taxonomies – a conceptual gap analysis.* Journal of Accounting, Finance and Auditing Studies, 3(1), 80–90.

[2] The issue of risk of bankruptcy and going concern issue in Polish enterprises was presented, for example, in the publication: Andrzejewski, Maślanka (2015).

Bholat, D., Lastra, R. M., Markose,S. M., Miglionico, A. & Sen, K. (2018). *Non-performing loans at the dawn of IFRS 9: regulatory and accounting treatment of asset quality,* Journal of Banking Regulation, 19(1), 33–54. doi:10.1057/s41261-017-0058-8.

Cai, F. & Wong, H. (2010). *The Effects of IFRS adoption on global capital market integration*, International Business and Economic Research Journal, 9(10), 25–34.

Cipullo, N. & Vinciguerra, R. (2014). *The impact of IFRS 9 and IFRS 7 on liquidity in banks: theoretical aspects*. Procedia – Social and Behavioral Sciences, Vol. 16491–97. doi: 10.1016/j.sbspro.2014.11.055.

Da Paixao Duarte, A. M., Saur-Amaral, I. & do Carmo Azevedo, G. M. (2015). *IFRS Adoption and Accounting Quality: A Review*, Journal of Business & Economic Policy, 2(2), 104–123.

Ernst & Young (2017). *EY IFRS 9 Impairment banking survey*. August 2017.

European Banking Authority (2017). *Report on results from the second EBA impact assessment of IFRS 9*. 13 July 2017.

Gornjak, M. (2017). *Comparison of IAS 39 and IFRS 9: the analysis of replacement*. International Journal of Management, Knowledge and Learning, Vol. 6(1), 115–130.

Huian, M. C. (2012). *Accounting for financial assets and financial liabilities according to IFRS 9*. Annals of the Alexandru Ioan Cuza University – Economics, 59(1).

IFRS 9 (2016). *IFRS 9 Financial instruments*, Commission Regulation (EU) 2016/2067 of 22 November 2016.

Kenneth, M. & Grazyina, M. (2013). *The Adoption of International Financial Reporting Standards for Small to Medium Enterprises in Zimbabwe,* International Journal of Asian Social Science, 3(11), 2315–2349.

Krüger, S., Rösch, D., & Scheule, H. (2018). *The impact of loan loss provisioning on bank capital requirements,* Journal of Financial Stability, 36, 114–129. doi: 10.1016/j.jfs.2018.02.009.

Levy, A. & Zhang, J. (2018). *Measuring and Managing the Impact of IFRS 9 and CECL Requirements on Dynamics in Allowance, Earnings, and Bank Capital*. Moody's analytics.

Marshall, R. (2015). *Adoption of IFRS 9 financial instruments*. Brussels: European Financial Reporting Advisory Group.

Marton, J. & Runesson, E. (2017). *The predictive ability of loan loss provisions in banks – Effects of accounting standards, enforcement and incentives*, The British Accounting Review, 49(2), 162–180. doi: 10.1016/j.bar.2016.09.003.

Mazars (2018). *Quantified impacts of IFRS 9: initial findings*.

NBP (2018). Retrieved from: http://www.nbp.pl/home.aspx?f=/statystyka/pieniezna_i_bankowa/naleznosci.html

Novotny-Farkas, Z. (2015). *The significance of IFRS 9 for financial stability and supervisory rules*. Directorate General for Internal Policies Policy Department A: Economic and Scientific Policy, European Parliament.

Reitgruber, W. (2016). *Expected loss provisioning under upcoming IFRS 9 Impairment Standards: A new source of P&L volatility — can we tame it?*. Journal of Risk Management in Financial Institutions, 9(4), 332–343.

BANKRUPTCY ACCOUNTING – REORGANIZATION

Jan HOSPODKA, Monika RANDAKOVA
University of Economics in Prague, Czech Republic
Jan.hospodka@vse.cz, randakm@vse.cz

Abstract
The focus of this paper is to analyse reporting rules for companies in insolvency proceedings that are undergoing reorganization or a similar process in the United States, Slovakia, Canada and the Czech Republic. The paper examines approaches to bankruptcy accounting in the respective countries in relation to their insolvency rules. The goal of this research is to come up with recommendations on how to improve Czech reporting rules when it comes to reorganization process and is part of a broader research that aims to suggest improvements to the bankruptcy accounting in the Czech Republic. The results have shown that bankruptcy accounting rules of the US are considerably more developed than those in Slovakia, Canada and the Czech Republic. In comparison, reporting rules for companies undergoing reorganization are almost non-existent in the Czech Republic. Based on the comparison with other countries, we are discussing possible adjustments to Czech reporting standards in order to make the reporting more transparent and closer to the needs of its readers.

Keywords: *Bankruptcy accounting, insolvency, reorganization, reporting*

1. INTRODUCTION

Bankruptcy is a common part of economic activity and is necessary for a long-term healthy development of market economy. Financial accounting has an important role in the market economy as it provides investors, creditors and other parties with information on financial performance of companies. They require this information to make the right decisions. Scorte et all (2009) or Peek at all (2010) discuss the considerable importance of financial reporting as a source of information for various parties. The problem is, however, the inadequacy with which financial accounting tackles bankruptcy (e.g. Walińska, Jędrzejewski, 2009; Mączyńska, 2009, in Bauer 2015). Literature covers different models or approaches to identification of red flags that predict nearing financial difficulties. There have also been many attempts to establish whether bankruptcy models work or not and which financial ratios are best suited in forecasting the bankruptcy. We can mention some of the recent research papers such as Lopatta et all (2017), Kovacova & Kliestikova (2017) or Chiaramonte et all (2016). There is, however, much less research conducted on the companies that have already entered the process of insolvency. This is peculiar, especially due to the fact that there are many stakeholders with much to lose. Nobel Prize winner, J.E. Stiglitz (2004), says that most economists do not study economic impacts of insolvency law, however, modern capitalism would not be able to develop the way it did without bankruptcy. The lack of coverage is visible in the case of international accounting standards as well. Both IAS 1 and IAS 10 suggest the necessity to abandon going concern basis of accounting if management either intends or is forced to liquidate the entity or to ceases trading. It however does not specify what other basis the entity should use nor does it offer any specific reporting requirements for such entities. Haskin & Haskin (2012) discussed the convergence of US GAAP and IFRS specifically in relation to bankruptcy accounting. They rightly point out that unlike in the US GAAP, IFRS do no touch upon bankruptcy accounting at all.

Reorganization represents an insolvency process which allows the company to continue operating and at the same time tackle its financial difficulties. After successfully completing the process of reorganization, a company should be able to continue operating in a sustainable manner. Reorganization usually take a form debt restructuring, business turnaround or sale of a part of the operations. In the cases of the analyzed countries, the reorganization process is based on a reorganization plan, which is approved by creditors as well as the court. This plan sets out individual steps of the reorganization process and their impact on the business.

It is important to understand that even though the financial reporting plays an important role in predicting financial difficulties, it should also play a considerable role in the insolvency proceedings as well. In our opinion, financial statements should be helpful in regards to reorganization in the following four ways:
- help predict nearing financial difficulties;
- provide relevant information when the entity is entering the insolvency process;
- give true and fair picture of the financial reality during the insolvency process;
- indicate the improvement of the financial health of an entity that has already completed the reorganization process

In the following chapters, this paper is going to analyze the reporting rules related to reorganization (or restructuring) in the Czech Republic, the United States, Canada and Slovakia. The goal of this paper is then to discuss differences in the reporting rules of the respective countries and find areas in which the rules in the US, Canada and Slovakia could serve as an inspiration to the Czech accounting rules with regard to reorganization.

Each one of these countries were chosen for particular defining characteristics. Slovakia shares much of history and economic development with the Czech Republic and therefore it is likely that its reporting requirements will be quite easily adaptable in the Czech environment. The United States was chosen as US GAAP is generally considered to be one the most developed reporting systems in the world. Lastly Canada was chosen based on literature review (primarily Haskin & Haskin 2012) which mention usage of the *Statement of Affairs* (described further in the text).

2. METHODOLOGY

The research has been prepared on the basis of insolvency legislation and reporting rules of the following countries:
- Czech Republic
- Slovakia
- United States
- Canada

Legislation related to the bankruptcy proceedings and reorganization in particular that was analyzed in this research is presented in Table 1.

Table 1. Overview of sources related to insolvency legislation

Country	Main source for insolvency legislation
Czech Republic	Act no. 182/2006 Coll. on Insolvency (Insolvency act) Decree no. 190/2017 Coll. on insolvency of a business entity (Insolvency Decree)
Slovakia	Act no. 7/2005 Coll. on Bankruptcy liquidation and Reorganization (SK Insolvency Act)
United States	United States Code, Title 11 (U.S. Bankruptcy Code) United States Bankruptcy Court (2017). Chapter 11, Petition Package for (Non-Individual Debtors).
Canada	Accounting Standards for Private Enterprises (ASPE)

Source: Authors' own analysis

The above listed pieces of insolvency legislation were analyzed for any mention of reporting requirements that have to be met by entities petitioning for bankruptcy as well as during the bankruptcy proceedings and are at the same time relevant also for Reorganization process (not only other bankruptcy proceedings). At the same time, authors have analyzed similarities and differences

of the insolvency proceedings compared to the Czech bankruptcy code and have taken into account only the legislation that is comparable to the Czech legislation in respect of reorganization.

Reporting standards and other pieces of legislation related to reporting and accounting rules were also screened for any mention of reorganization (or a similar term applicable for given legislation). Related requirements or guidelines were then analyzed. The legislation or standards which were used in the research are shown in Table 2.

Table 2. Overview of sources of legislation and standards related to reporting rules

Country	**Main source for reporting**
Czech Republic	Act no. 563/1991 Coll. on accounting (the Accounting act) Decree no. 500/2002 Coll. on Accounting (Accounting Decree) Czech accounting standards (CAS)
Slovakia	Act no. 431/2002 Coll. on Accounting (SK Accounting Act) Decree of the Ministry of Finance of Slovakia on accounting (SK Accounting Decree)
United States	US GAAP, ASC 852
Canada	Bankruptcy and Insolvency Act. (R.S.C., 1985, c. B-3). Companies' Creditors Arrangement Act (R.S.C., 1985, c. C-36).

Source: Authors' own analysis

The sources mentioned in Table 2 were analyzed for any mention of reorganization and related reporting and accounting rules. We have kept in mind that the GAAP in the Czech Republic and Slovakia have more strict reporting rules and legally binding trial balance compared to the US and Canadian GAAP.

3. REORGANIZATION – REPORTING RULES

3.1 The case of the Czech Republic

The Czech Republic has the following main sources for reporting rules related to reorganization:

- Act no. 563/1991 Coll. on Accounting (Accounting Act)
- Decree no. 500/2002 Coll. on Accounting (Accounting Decree)
- Czech accounting standards (CAS)
- Act No. 182/2006 Coll. on insolvency (Insolvency Act)
- Decree no. 190/2017 Coll. on insolvency of a business entity (Insolvency Decree)

When petitioning for bankruptcy, the debtor needs to submit lists of all their assets and liabilities (Insolvency Act, section 104) (there is no requirement to submit financial statement).

As per section 3 of the Insolvency Act, Article 3, a debtor is considered as being able to repay their debt as long as the difference between

(i) due and overdue liabilities and
(ii) financial means available

(So called liquidity gap) as per the Liquidity statement (described further in the paper) is less than 10% of due and overdue liabilities or if the Outlook of liquidity development (also described in the following text) provides a confirmation that the liquidity gap will go below 10% in the period under review.

The liquidity gap concept was introduced only in 2017 in the Czech Republic and represents a powerful tool in assessing the financial situation of the company. It helps to distinguish between (i) healthy businesses that are struggling at this very moment due to extraordinary events however are otherwise heathy and (ii) businesses that have financial difficulties. The liquidity gap is calculated in the Liquidity statements in which the company has to report all (i) short term financial assets including any unused loan or available bank overdraft and (ii) all liabilities that are due and overdue.

The Liquidity statements need to be compiled either by an auditor, valuator or a different financial advisor (Insolvency Decree, Section 2). If the liquidity gap of the entity is below 10%, it can easily fight off hostile bankruptcy petitions by creditors. In case the liquidity gap is over 10%, the entity needs to compile a form called Outlook for liquidity development.

Article 4 of the aforementioned section states that determination of the value of the business needs to take into account whether the business will be able to operate in the future. This suggests that when assessing the value of the business, it needs to be decided whether the going concern assumption is still applicable. This is in agreement with the accounting rules which state that if the going concern is no longer applicable, a different basis of measurement should be used. (Accounting act, section 7, article 3). Marik (2007) confirms this by saying that companies facing imminent bankruptcy should use liquidation costs as their valuation method. We believe, however, that in case of a reorganization, it is safe to assume that the going concern assumption should still be applicable and therefore a basis of measurement other than liquidation values should be used. Krabec (2016) indicates that replacement values (i.e. the value new at current prices, of a similar asset) is the most appropriate. However, the Insolvency Act states that any revaluation for the purposes of the insolvency process should not have any effect on the financial statements of the company (Insolvency Act, section 219).

Section 7 in the Accounting act defines the going concern as: *"The accounting entity must use accounting methods, which origin in the assumption of going concern and that no conditions or events that raise substantial doubt about an entity's ability to continue as a going concern are present. In case the entity has any knowledge of such condition or event, it must apply appropriate accounting methods and disclose information about the accounting methods used in its notes to financial statements"*.

It also specifies the instances at which the entity has to publish its financial statements with regards to different stages of the insolvency process (Section 17). However, it does not provide any information on any reporting specifics (such as special reporting items related to the reorganization) in relation to the insolvency.

The Accounting decree mentions insolvency and reorganization in two instances. Firstly, in section 4 it states that an entity which enters bankruptcy or liquidation, should not report about prior periods in their financial statements and should only report about its opening balance as at the day when the bankruptcy ruling comes into effect. In section 16 of the Accounting decree, Article 4 relates to provision creating, specifically it mentions that line item "other provisions" on the balance sheet should also include any provisions related to restructuring and discontinued operations.

One of the Czech Accounting standards (CAS) is devoted only to the bankruptcy accounting and provides entities with guidelines on how to perform bookkeeping in case the entity enters an insolvency process. The problem of this accounting standard is that it was issued before 2008 (when reorganization was introduced in the Czech Republic) and does not mention reorganization whatsoever. That leaves the entities in an information vacuum on how to perform booking and reporting.

As per presentation in the financial statements during the reorganization process, there are no rules available as how to proceed. Randakova (2018) states that the entity should follow the general notions as given by CAS 21 (even though CAS 21 does not discuss reorganization whatsoever).

3.2 The case of Slovakia

Slovakia has the following main sources for reporting rules related to reorganization:

- Act no. 431/2002 Coll. on Accounting (SK Accounting Act)
- Decree of the Ministry of Finance of Slovakia on accounting (SK Accounting Decree)
- Act no. 7/2005 Coll. on Bankruptcy liquidation and Reorganization (SK Insolvency Act)

When petitioning for reorganization in Slovakia, a company must submit the following files (SK Insolvency Act, section 112):

- Reorganization Assessment of an insolvency administrator

- List of all assets
- List of all liabilities
- List of all related parties
- List of all transactions with related parties in the two periods prior to the petition that would surpass 10% of registered capital of the company or 5% of the minimum required registered capital for a joint stock company, if the debtor reported no registered capital
- Latest financial statements of the company

If a debtor wants to undergo reorganization, an insolvency administrator must put together an official Reorganization Assessment which they use to assess the requirements and recommend the suitable reorganization type. The Reorganization Assessment comprise of a detailed description of the financial and economic situation of the debtor, including (the list below is not conclusive) (SK Insolvency Act, section 110):

- Description of taken measures to tackle the nearing financial difficulties
- Description of all transactions with related parties that could have let to the insolvency
- Assessment of creditors
- Description of conditions under which the entity might be able to continue its operations
- Description on equity and payouts of dividends in the last two years
- Auditor's opinion on the last financial statements

The Reorganization Assessment, therefore, comprises fairly detailed information on the financial and economic situation of the company including the development in the past two years. Such a document represents a fairly good tool for the court to assess financial health of the entity.

Slovakian Accounting Act describes going concern in a similar way as the Czech Accounting Act. Section 7 of the SK Accounting Act says that *"The accounting entity must use accounting methods, which origin in the assumption of going concern and that no conditions or events that raise substantial doubt about an entity's ability to continue as a going concern in the nearest future (minimum of 12 months after the period for which are the statements reported) are present. In case the entity has any knowledge of such condition or event, it must apply appropriate accounting methods and disclose information about the accounting methods used in its notes to financial statements"*. It specifies that the entity needs to take into account twelve months after the day the balance sheet is published. This specification is not present in the Czech GAAP. Apart from the going concern and a few sections that relate to bankruptcy liquidation, SK Accounting Act does not mention reorganization at all.

However, reorganization is described in more detail in the SK Accounting decree which devotes one section to Accounting & reporting instructions for companies that have entered an insolvency process (either liquidation bankruptcy or reorganization). It provides instructions on how to perform booking for debtors on the following items (SK Accounting Act, section 29):

- After the reorganization plan has been confirmed by the court, the debtor shall book the decrease of the liabilities against other operating income (Account 648)
- For a liability that has not been recognized in the books but was recognized by the court should be booked against retained earnings
- Issuance of new shares against a receivable should be booked against 548 – other operating expenses
- Instructions on booking in case a liability towards a creditor is settled from the profit of the company
- The possibility of the creditor to have their receivable settled from the future profit should be included in the list of the off-balance sheet items in the notes to financial statements.

In section 37 is mentioned that any expenses related to reorganization or restructuring cannot be capitalized. Section 56 further states that expenses related to reorganization or restructuring shall not

be accrued (unless they are prepaid). The Ministry of Finance of Slovakia also issued guidelines on how to proceed step by step according to the rules states in the Decree (Financial Administration of Slovakia, 2018).

3.3 The case of the United States

The United States have the following main source for reporting rules related to reorganization:

- US GAAP, ASC 852
- Chapter 11 of the Bankruptcy Code

While filing for the petition to undergo reorganization in the United States under Chapter 11, an entity must submit the following documents to the court (list is not conclusive) (USBC 2017):

- Schedule of assets – Real and personal property
  - This schedule is an electronical form that every non-individual debtor has to submit. It includes detailed information on all assets of the debtor. Both net book value and current value should be estimated.
- Schedules of secured and unsecured claims
  - Electronical form that every non-individual debtor has to submit. It includes detailed information on the liabilities, their nature and status.
- Schedule of executory contracts and unexpired leases
  - Electronical form that every non-individual debtor has to submit. The debtor should include all executory contracts and unexpired leases including their description.
- A statement of financial affairs
  - Electronical form that every non-individual debtor has to submit. It includes the following items:
    - Income: The debtor must report information on gross business revenue for the past three periods and non-business revenue for the past three periods, including a description of their nature
    - List of any payments towards creditors in the past 90 days, excluding regular payouts of employee related payables.
    - Information on any transfer to an "insider" (i.e., relatives, general partners, and directors or officers of the debtor) within the past year.
    - List of all property of the debtor that was obtained by a creditor within 1 year before filing the case
    - The debtor should also state any information on involuntarily setoffs, contributed gifts within the past two years, losses from fire, theft or other casualties, payments and expenses already incurred related to bankruptcy or any other extraordinary transactions in the past two periods and other information.

This list above shows that US insolvency rules require the debtor to provide the court and other parties with a significant amount of detail on their business operations (in electronical form) (USBC 2017). It is not required in the Czech Republic to submit anything electronically.

Reporting rules throughout the reorganization process in the US are based on the accounting standard ASC 852 which specifies that all reorganizations under Chapter 11 of the Bankruptcy Code (i.e. US equivalent of the reorganization as per Czech Insolvency Act). The standard ASC 853 states that "*entering a reorganization proceeding, although a significant event, does not ordinarily affect or change the application of generally accepted accounting principles (GAAP), followed by the entity in the preparation of its financial statements. However, the needs of financial statement users change, and thus change in the reporting practices previously followed by the entity are necessary*". (ASC 852-10-45). This presumption that reorganization brings different information needs to the readers of financial statements is very important as it allows the standards to adapt to the new economic reality. In the following text, the main aspects of differences in reporting are described. The standard itself contains an example of the financial statements and how they should be reported in case the company undergoes reorganization. There is also supporting literature to explain the reporting (e.g. Ratcliffe

1991) and numerous guidebooks prepared by professional advisors. ASC 852 describes reporting specifics mainly related to the (i) Balance sheet, (ii) P&L statements and (iii) Cash flow statement. In general, the entity should distinguish transactions and events associated with reorganization from those related to the normal course of business. There are also other sections of ASC 852 that cover reorganization topics, for example consolidated financial statements of entities in reorganization or what is to be disclosed in the notes to the financial statements (described in 852-10-50). US GAAP also clearly states that an entity undergoing reorganization should be prepared on the going concern basis of reporting. The description of going concern falls under a different standard which consists of a detailed description on the topic.

Balance sheet

In the balance sheet, entity should firstly distinguish between liabilities that will be subject to compromise (these include all liabilities which are in any way impaired by the plan, such as lower amount to be repaid or postponed maturity date) and liabilities not subject to compromise. These should be reported in the same way as before the bankruptcy process, i.e. distinguished between current and non-current and classified based on their contractual terms of obligation. Liabilities not subject to compromise also include all liabilities that were incurred after the date of the petition (ASC 852-45)

Liabilities that will be subject to compromise can be reported as one figure at the basis of expected amount to be repaid to the creditors and do not have to be split into current and non-current nor into any other categories. As per the standards, liabilities subject to compromise are supposed to be reported at the amount that is expected to be repaid (i.e., likely to be set out by the reorganization plan). If the amount expected to be repaid differ from the amount initially reported, the gain or loss from such revaluation should be reported as a Reorganization item in the P&L (ASC 852-45). It is a little bit problematic as the standard does not provide any instructions for those entities that enter reorganization but whose claims (liabilities) have not yet been accepted by the court. Usually, entities either follow ASC 852 already or they follow accounting policies under other relevant US GAAP.

P&L & Cash Flow statements

In the P&L of an entity undergoing reorganization, it is necessary to distinguish gains and losses (i) from continuing operations, (ii) from discontinued operations (as per ASC 205-20) and (iii) items regarded as reorganization items (ASC-852-10-45). Defining reorganization items is often quite subjective. Generally, it should only be items that are incremental and directly connected to the reorganization process. Typically, as reorganization items, we could consider (i) an interest income from having excess cash on the company's bank account (as a result of the reorganization process), (ii) gains and losses related to the adjustment of the entity's debt and (iii) professional fees directly related to the reorganization and restructuring process.

In the Cash Flow statement, the entity should disclose all reorganization items separately in the operating, investing and financing Cash Flows. As per ASC 852-10-45-13, it is possible to use both direct and indirect methods for presenting the Cash Flow.

Reporting rule after the emergence from the reorganization process

Entities that meet all the conditions set out by the reorganization plan which is confirmed by the court and emerge from the reorganization process, should apply reporting principles as per ASC 852-10-45-19. The US GAAP states that if the reorganization value of assets of the entity is higher than all post-petition liabilities or if the existing holders of share in the entity end up having only 50% of the share of the entity after the end of the reorganization process, the entity should adopt Fresh start accounting. Entities that do not meet these criteria, should apply respective standards, however they should not adopt fresh start reporting. (ASC 852-10-45-29).

Haskin & Haskin (2012) further mention that an entity adopting fresh-start accounting after emerging from a reorganization process, should report the following in its notes to financial statements:

1. Adjustments to the historical amounts of individual assets and liabilities.
2. The amount of debt forgiven.
3. The amount of prior retained earnings or deficit eliminated.
4. Significant matters relating to the determination of reorganization value such as:
    a. Method used to determine reorganization value.
    b. Sensitivity assumptions.
    c. Assumptions about anticipated conditions.

As described above, the US legislation gives much lucid instructions on what to report when petitioning for the reorganization process as per the Bankruptcy Code (e.g. Statement of Financial affairs). US GAAP also has a separate section that describes reporting requirements for companies undergoing reorganization. This not only provides entities with information on the whats and hows of reporting but also consolidates the information into one section, making it more user-friendly.

3.4 The case of Canada

Canada has the following main sources for reporting rules related to reorganization:

- Bankruptcy and Insolvency Act (BIA)
- Companies' Creditors Arrangement Act (CCAA)
- IFRS standards
- Accounting Standards for Private Enterprises

In Canada, reorganization proceedings are described by two primary pieces of legislation – BIA and CCAA. Whereas BIA represents the main piece of Canadian legislation related to insolvencies (including reorganization), CCAA is meant primarily for larger entities that want to undergo reorganization and remain in control of their operations (i.e. similar to Chapter 11 of US insolvency law or reorganization under Czech and Slovakian insolvency laws). According to BIA, when petition for bankruptcy, a company must also file a Statement of affairs (described in the following text) (BIA, section 50, 2b). BIA contains 275 sections and is supposed to encompass the complete insolvency legislation. Compared to that, CCAA has only 22 sections, is more flexible and relies on decisions of the bankruptcy courts to fill in. The CAAA is generally meant for larger, more complicated case of restructuring. In order to be able to undergo reorganization under the CCAA, the entity must be insolvent and have outstanding liabilities of at least USD 5m. During CCAA proceedings, the debtor company typically continues to carry on business as usual. Significant transactions out of the ordinary course of the debtor's business are usually submitted to the court for approval.

Haskin & Haskin (2012) mention that under the CCAA, the Statement of Affairs is a special, extended, balance sheet which sets out not only the book values of assets and liabilities, but also provides the following:

- Estimated current values of assets, and
- Amounts pledged as security and estimated amount available to meet unsecured claims.

The objective of the statement of affairs is thus to provide a summary analysis of the financial position of the firm and of the prospects of the various categories of creditors in liquidation (Haskin & Haskin 2012). Statement of affairs represents a document which can provide its reader with a great deal of information on the business, especially as it includes information on different types of liabilities (e.g. unsecured, secured or preferred creditors) as well as information on original and estimated present current value of its assets (Government of Canada 2018). The form is to be submitted electronically.

In 2006, Canadian standards board (Accounting Standards Board, AcSB) made a decision to converge Canadian GAAP with IFRS for publicly accountable enterprises. Privately accountable enterprises generally follow either IFRS or Accounting Standards for Private Enterprises (ASPE). As we have already established, IFRS does not include bankruptcy accounting. Therefore, the ASPE are the only other source of rules for reporting by companies in insolvency proceedings. The possibility

to apply different accounting standards within Canadian GAAP has been previously researched by many Canadian authors such as Rennie & Senkow (2009).

ASPE includes detailed information on what the entities should do in case they undergo a reorganization. Its primary focus is on whether a reorganization means revaluation of assets or not. Section 1625 clearly states that unless the entity appoints a new owner after the reorganization process is finished, a comprehensive revaluation is not needed. For the purposes of this paper it is assumed that the shareholders remain the same after the reorganization process is finished and the revaluation would therefore not be needed. The standards give very clear instructions how to perform the comprehensive revaluation and even provide an example of how it should be presented in the financial statements and disclosure to financial statements. Since ASPE do not have an individual standard which would be devoted reorganization but rather describe particular differences for entities undergoing reorganization in different standards, the information on reporting in reorganization is scattered over the standards (list is not conclusive and excludes all items related to a comprehensive revaluation). They relate primarily how to treat any claims towards counterparties that have entered reorganization (i.e. from the point of view of the creditor, not the debtor):

- An impairment of an investment should be made if it becoming probable that the investee will enter bankruptcy or other financial reorganization (ASPE, section 3051)
- An impairment of a leased assets should be made if it becoming probable that the lessee will enter bankruptcy or other financial reorganization (ASPE, section 3065)
- An impairment of a financial asset should be made if it becoming probable that the customer or issuer will enter bankruptcy or other financial reorganization (ASPE, section 3856)

ASPE do not describe reporting rules to companies undergoing reorganization to such a detail as the US GAAP and focus mainly on the revaluation of assets and liabilities after the reorganization has finished (which could be compared to the Fresh start reporting under the US GAAP). Fresh start reporting is however something that is completely non-existent as of now in the Czech Republic and is not a focus of this paper. From the debtor’s point of view, ASPE do not provide detailed reporting guidelines for reorganization process.

4. DISCUSSION

Analysis of the reporting requirements in the United States, Canada, Slovakia and the Czech Republic has shown that in all countries there are some rules regarding what should be reported to the court when petitioning for the reorganization and different rules as to how to report during the reorganization (even though in the Czech Republic and Canada these are rules are very limited).

Reporting requirements

We believe that there is a lot that could be included in the Czech reporting rules when it comes to reporting requirements in reorganization. Due to the similar historical development and the nature of accounting rules, it would be most natural to look at the rules which are put in place in Slovakia. We consider the most relevant to be the four following (SK Accounting Act, section 29):

- After the reorganization plan has been confirmed by the court, the debtor shall book the decrease of the liabilities against other operating income (Account 648)
- For a liability that has not been recognized in the books but was recognized by the court should be booked against retained earnings
- Issuance of new shares against a receivable should be booked against 548 – other operating expenses
- The possibility of the creditor to have their receivable settled from the future profit should be included in the list of the off-balance sheet items in the notes to financial statements.

Considering that specific rules for reporting in insolvency proceedings (however not updated) are in the Czech Republic included in the Czech Accounting Standard 21, we would propose to include a new section in the CAS 21 that would cover solely reorganization proceedings (as it currently covers other proceedings such as liquidation or liquidation bankruptcy).

It is also important to bear in mind that for user of financial statements, it could be very important to them to see the financials of the business operations separated from the reorganization items. Not only because it is in the interest of the users of financial statements to understand how the business is actually doing but also because they might want to see how costly is the reorganization process itself. In our opinion, two very important aspects need to be tackled:

- Some reorganization-related items (such as professional fees) might have a negative effect on the P&L and thus optically worsen the financial performance of the company
- On the other hand, some reorganization items (such as a decrease in liabilities booked against other operating income) might have a considerable positive effect on the P&L and Cash Flow statements of the company and thus optically improve the financial performance of the company.

As the reorganization process can also take a fairly long period of time, it is also vital to see the development of the business operations and it one would wish to see them not biased by the reorganization-related items (especially the Cash Flow statement). In order to achieve this, it is possible to look at the US GAAP which could serve as a very good source of inspiration. We believe that it could be quite simple to make changes to statutory accounts in case the entity is undergoing a reorganization:

- A new category in the balance sheet named "Liabilities subject to compromise" in which the entity would report all liabilities that are in any way impaired by the reorganizational plan
- A new category in the P&L named "Reorganizational items" in which the entity would report all gains and losses related to the reorganizational process itself
- A new category in the Cash Flow statement named "Reorganizational items" in which the entity would report all gains and losses related to the reorganizational process itself

These new categories would have to be introduced in the Accounting Decree. However, companies might tend to use the category for "Reorganizational items" for shifting their undesired losses into this category. A similar effect was already illustrated in the case of separate classification of discontinued operations in the US, as was researched for example by Abhijit et al (2010). We, therefore, suggest the inclusion of a conclusive list of items that can be included in the line "Reorganizational items" in the P&L and in the Cash Flow statement.

5. CONCLUSION

In this paper we have analyzed different approaches to bankruptcy accounting in relation to reorganization in the Czech Republic, Slovakia, the United States and Canada. We believe that since the introduction of the forms (i) Liquidity statement and (ii) Outlook for the liquidity development, the reporting for companies entering the bankruptcy in the Czech Republic is fairly sufficient. Furthermore, introducing additional reporting of full financial statements as at the day when the entity is petitioning for bankruptcy, would be quite time-consuming and maybe even unnecessary.

We have discovered that the US have by far the most developed set of standards when it comes to companies in reorganizations. What is fairly disappointing, however, is the current level of reporting requirements for companies in the Czech Republic. Not only in comparison with the United States but also to Slovakia. We believe that there are rules and guidelines that can be adopted by the reporting standards in the Czech Republic for two primary reasons. Firstly, it would provide more clarity for the reporting entities themselves on how to perform accounting & bookkeeping. Secondly, it would provide the reader of the financial statements with much better picture of the economic

situation of the entity. The paper thus presents our recommendations for changes to the Czech reporting requirements based on the inspiration from the United States, Slovakia and Canada.

This paper is part of a broader research focused on bankruptcy accounting in the Czech Republic. Our future research is going to focus on other forms of bankruptcy as well as broaden the focus also onto other countries and their reporting frameworks. Ultimate goal of this research is to present recommendations on how to improve reporting requirements in the Czech Republic for companies in bankruptcy proceedings.

Acknowledgment

This paper has been prepared within the research project "Textual Analysis of Financial Statements" (supported by the Grant Agency of the University of Economics, Prague; No. F1/18/2018).

BIBLIOGRAPHY

Alexander, J., Havel, B., Kuděj, M., Louda L., Schönfeld, J., Mezera krytí v příkladech, Restrukturalizace a insolvence, 2017, Praha, Triton 2017, ISBN 978-80-7553-460-6.

Bauer, K. (2015). Accounting in the Juridical Restructuring Proceedings: Theory and Practice. *In Knowledge, Economy, Society: Challenges and Development Trends of Modern Economy Finance and Information Technology*. Foundation of the Cracow University of Economics. ISBN: 978-83-65173-32-4

Abhijit, B., Lin, S., Sbaraglia, A.M. (2010). Earnings Management Using Discontinued Operations. The Accounting Review. 1485–1509. Doi:10.2308/accr.2010.85.5.1485

Chiaramonte, L., Liu, (. H., Poli, F., & Zhou, M. (2016). How accurately can Z-score predict bank failure? Financial Markets, Institutions & Instruments, 25(5), 333–360. doi:10.1111/fmii.12077

FASB (2017). FASB Accounting Standards Codification Notice to Constituents. (US GAAP). [online]. [cit. 2018-08-02]. Available at: https://asc.fasb.org/

Financial Administration of Slovakia (2018). Accounting in Reorganization. [online]. cit. 2018-08-04]. Available at: https://podpora.financnasprava.sk/119929-Da%C5%88-z-pr%C3%ADjmov-pr%C3%A1vnickej-osoby

Government of Canada (1985a). Bankruptcy and Insolvency Act. (R.S.C., 1985, c. B-3). [online]. cit. 2018-08-04]. Available at: http://laws-lois.justice.gc.ca/eng/acts/B-3/

Government of Canada (1985a). Companies' Creditors Arrangement Act (R.S.C., 1985, c. C-36). [online]. [cit. 2018-08-02]. Available at: http://laws-lois.justice.gc.ca/eng/acts/C-36/

Government of Canada (2018). Form 78—Statement of Affairs (Business Bankruptcy/Proposal). [online]. cit. [2018-08-02]. Available at: https://www.ic.gc.ca/eic/site/bsf-osb.nsf/eng/br02195.html

Chartered Professional Accountants of Canada (2018). Accounting standards for private enterprises (ASPE). [online]. cit. [2018-08-02]. Available at: http://laws-lois.justice.gc.ca/eng/acts/C-36/

Haskin, D.L., Haskin, T.E. (2012). Hierarchy of US GAAP vs. IFRS – the Case of Bankruptcy Accounting. In International Business & Economics Research Journal. The Clute Institute. DOI https://doi.org/10.19030/iber.v11i4.6874

International Accounting Standards Board (2003a). Conceptual Framework. *In: International financial reporting standards (IFRS's) including international accounting standards (IAS's) and interpretations.* London, International Accounting Standards Board.

International Accounting Standards Board (2003b). IAS 1. *In: International financial reporting standards (IFRS's) including international accounting standards (IAS's) and interpretations.* London, International Accounting Standards Board.

International Accounting Standards Board (2003c). IAS 10. *In: International financial reporting standards (IFRS's) including international accounting standards (IAS's) and interpretations.* London, International Accounting Standards Board.

Kovacova, M., & Kliestikova, J. (2017). Modelling bankruptcy prediction models in slovak companies. SHS Web of Conferences, 1013. doi:10.1051/shsconf/20173901013

KRABEC, T. (2016): Význam zvolené kategorie hodnoty dlužníkova majetku pro posouzení úpadku ve formě předlužení [online]. In: vyzkuminsolvence.cz. [cit. 2018-07-19]. Available at: http://www.vyzkuminsolvence.cz/data/files/2016-cnb/5-vyznam-zvolene-kategorie-hodnoty-dluznikova-majetku.pdf

Lopatta, K., Gloger, M. A., & Jaeschke, R. (2017). Can language predict bankruptcy? the explanatory power of tone in 10-K filings. Accounting Perspectives, 16(4), 315–343. doi:10.1111/1911-3838.12150

Mařík, M. aj. (2007). Metody oceňování podniku. Proces ocenění – základní metody a postupy. Praha, Ekopress, 2007.

Ministry of Justice of the Czech Republic (2006). Act No. 182/2006 Coll. on insolvency (Accounting Act).

Ministry of Finance of the Czech Republic (1991). Act No. 561/1991 Coll. on accounting (Accounting Act).

Ministry of Finance of the Czech Republic (2002). Decree No. 500/2002 Coll. on accounting (Accounting Decree).

Ministry of Finance of the Czech Republic (2018). Czech Accounting Standards. [online]. Available at: http://www.mfcr.cz/cs/verejny-sektor/ucetnictvi-a-ucetnictvi-statu/ucetni-reforma-verejnych-financi-ucetnic/pravni-predpisy/platne-ceske-ucetni-standardy/2018/ceske-ucetni-standardy-pro-ucetni-jednot-30742

Ministry of Justice of Slovakia (2005). Act no. 7/2005 Coll. on Bankruptcy liquidation and Reorganization (SK Insolvency Act).

Ministry of Finance of Slovakia (2002). Act no. 431/2002 Coll. on Accounting (SK Accounting Act).

Ministry of Finance of Slovakia (2002). Decree of the Ministry of Finance of Slovakia on accounting (SK Accounting Decree).

Peek, E., Cuijpers, R. & Buijink, W. 2010, "Creditors' and Shareholders' Reporting Demands in Public Versus Private Firms: Evidence from Europe", Contemporary Accounting Research, vol. 27, no. 1, pp. 49.

Randáková, M. (2018). Mimořádné účetní závěrky. Oceňování Insolvenční řízení. *Lecture at the Chamber of Auditors of the Czech Republic*. In *Chamber of Auditors of the Czech Republic.*

Ratcliffe, T.A. & Munter, P. 1991, "Financial Reporting Under Chapter 11", The CPA Journal, vol. 61, no. 12, pp. 52.

Rennie, M. D., & Senkow, D. W. (2009). Financial reporting for private companies: The canadian experience. *Accounting Perspectives, 8*(1), 43–68. doi:10.1506/ap.8.1.3

Scorte, C.M., Cozma, A. & Rus, L. 2009, "The Importance Of Accounting Information In Crisis Times", Annales Universitatis Apulensis : Series Oeconomica, vol. 11, no. 1, pp. 194–200.

Stiglitz J.E. (2004), The Process of European Integration and the Future of Europe, Discussion Paper Series, No. 2004.1, Geneva, Switzerland, United Nations Economic Commission for Europe.

United States Bankruptcy Court (2017). Chapter 11, Petition Package for (Non-Individual Debtors). [online]. [cit. 2018-08-05]. Available at: http://www.cacb.uscourts.gov/sites/cacb/files/documents/forms/Ch11%20Non-IndividualPetitionPackage.pdf

United States Code (2018). Title 11 (Bankruptcy Code).

RELATIONSHIPS BETWEEN PROFITABILITY AND THE IFRS APPLICATION ON AN EXAMPLE OF THE EUROPEAN LISTED COMPANIES

Marcin KĘDZIOR, Dorota KĘDZIOR, Mariusz ANDRZEJEWSKI
Cracow University of Economics, Poland
kedziorm@uek.krakow.pl, kedziord@uek.krakow.pl, andrzejm@uek.krakow.pl

Abstract
An aim of the article is to verify empirically if the IFRS application is connected with profitability of enterprises in the selected states of the European Union. An influence of the theory of agency, asymmetry and signalling on the relationships between the IFRSs and profitability is presented in the article. An influence of the IFRSs at a level of conservatism of financial results, including relationships between an application of IFRSs and profitability in the context of risk, capital costs and a quality of a financial result was presented. Public manufacturing companies from the following states: Belgium, Finland, France, Germany, Greece, Italy, Holland, Spain, Sweden, Great Britain, Latvia, Lithuania, Poland, Slovakia and Slovenia were the subject of the analysis. The relationships between the IFRSs and ROA, ROE, ROS and EPS were subjected to the empirical verification. The relationships between the IFRSs and profitability were verified empirically in a positive way in the enterprises from Eastern Europe, while those relationships for the enterprises from Western Europe proved to be very weak. Significance of differences was confirmed by Mann-Whitney tests. The investigations verifying the relationships between the IFRSs and profitability ratios simultaneously in the enterprises from Western and Eastern Europe should be considered as relatively new in the subject literature.

Keywords*: IFRS, profitability, manufacturing companies, European Union*

1. INTRODUCTION

Since 2005 in the European Union financial institutions and the companies drawing up consolidated financial statements, listed on the stock exchange have been obliged to prepare financial statements according to the IFRSs. It is worth noting that the possibilities of applying IFRS are very different in individual EU countries. In some countries IFRS are only required for listed companies preparing consolidated financial statements (e.g. France, Sweden, Spain), while IFRS are allowed in non-listed companies that also prepare consolidated financial statements. In some countries separate financial statements based on IFRS of both listed and private companies are allowed (e.g. Denmark, Finland, Ireland), while in others it is not possible to use IFRS (e.g. Austria, Belgium, Hungary). In Greece, IFRS are required for listed companies, while for non-listed companies they are allowed. On the other hand, in Bulgaria, IFRS are obligatory to all companies, both listed and non-listed (Guggiola, 2010; http://www.iasplus.com/en).

The initial costs connected with the IFRS implementation proved significant. They were largely connected with employment of qualified staff and use of an appropriate information system. There was a concern if advantages resulting from the IFRS application, will compensate costs connected with their implementation. Lots of positive aspects of applying the international standards have been noticed over time. The main advantages include, among other things, a possibility of procuring capital on the international markets. Adopting IFRS should provide a higher degree of transparency while preparing financial statements comparing to local standards. It results in more effective operating of the European capital market, because the primary goal of reporting is to provide investors with reliable information (Palea, Scagnelli, 2017). Applying uniform standards is to ensure that financial statements of companies can be compared at international level. It will enable potential investors to determine future cash flows and decrease a level of an investment risk. Moreover, the IFRSs contribute to an improvement of the quality of

financial statements. Use of the fair value as one of the main valuation methods proposed by the IFRSs provides the investors with obtaining more reliable information about a situation in a company. Valuation of financial assets and liabilities, derivative instruments at the fair value allows obtaining more reliable data about future flows generated by companies (Barth, Cram, Nelson, 2001). The IFRSs became generally applicable accounting standards for some countries belonging to economies of underdeveloped or developing countries. Since those countries did not have any means for developing and implementing their own accounting system the IFRSs constituted a ready-made solution of a high quality.

As it has been already mentioned earlier one of the main characteristics of the IFRSs is their clarity and transparency, and that is why it may be concluded that profitable entities will be interested in implementing the IFRSs. The companies with good financial results disclose information willingly to create a positive company image. The basic finance theories should be used, such as a theory of principal agent, signaling and asymmetry of information to understand better this phenomenon.

Agency theory deals with a conflict between mangers (agents) and shareholders (stakeholders) whose interests are conflicting. Managers can act in their own interest, and not in the interest of owners. It may be manifested by biased financial information and cause negative effects for a company. Owners must trust the manger, but unless he is subject to control, the actions undertaken by him will not contribute to maximize wealth of owners Donaldson, Davis, 1991). Financial reporting of a high quality (e.g. on basis of the IFRSs) plays a significant role in the relations mentioned above because publishing a financial statement of a high quality after its auditing by auditors (Andrzejewski, Maślanka, Mazur-Maślanka, 2016), is a signal about a real effect of management board work for shareholders (Pae, Thornton, Welker, 2016). If reporting is made according to the IFRSs, it is an additional positive signal for stakeholders, because the IFRSs are considered to be standards of a high quality. Positive signals of this type make forming appropriate relations with such important interest groups in the enterprises as owners, creditors and management board. If, additionally, the financial statements prepared on basis of the local standards are generally more conservative than the IFRSs (Radebaugh, Gray, Black, 2006; Grabiński, Kędzior, 2007a), mangers may aim at their implementation because they can have a positive impact on the reported financial results. In practice management board remuneration often depends on the financial results of a company (Brigham, Gapenski, 2000). Financial ratios, in particular profitability ratios, can play a significant role in the opinion of managers. A positive relationship between applying determined accounting standards and financial ratios can encourage managers to use these standards, because indicating good financial results, important for shareholders and potential business partners, is in their interest (Ferrer, 2016). This relationship will be stronger if additionally the IFRSs contribute to reducing the risk of a company (Fijałkowska, Jaruga-Baranowska, 2007) or the capital cost (Francis, LaFond, Olsson, Schipper, 2004). In conclusion the management board will approve these actions e.g. the IFRS implementation, which strengthen their position in the enterprises and improve a financial situation of an enterprise, with a particular focus on the ratios which constitute the basis of their assessment (profitability ratios).

The conflict between the agent and the owner may lead to information asymmetry. This phenomenon occurs when one of the parties has a better access to information than the other. However, the directors managing an enterprise cannot disclose all information due to competition. Therefore, an effective way of providing information plays a significant role. A reliable and transparent financial statement and systematic and voluntary disclosure of information are one of the tools which signal about the real value of a company (Ferrer, 2016). If the statements are drawn up according to the IFRSs, it is a signal that a company discloses large amounts of high quality data, what is required by the standards. Furthermore, the companies of good profitability ratios are not afraid of disclosing information voluntarily and they will use the IFRSs more willingly, as it shows a high quality and reputation of a company.

An objective of the paper is to verify empirically if applying the IFRSs is connected with profitability of an enterprise in the selected states of the European Union. The analysis will be

performed simultaneously in the selected states of Western Europe and Eastern Europe. The subject of the analysis will be public manufacturing companies of the following states: Belgium, Finland, France, Germany, Greece, Italy, Netherlands, Spain, Sweden, Great Britain, Latvia, Lithuania, Poland, Slovakia and Slovenia. Relationships between IFRS, ROA, ROE, ROS, EPS will be subjected to empirical verification. The investigations verifying the relationships between the IFRSs and profitability ratios simultaneously in the enterprises from Western and Eastern Europe should be considered as relatively new in the subject literature. Research methods used in the paper include literature studies in the theoretical part and quantitative methods (the Shapiro – Wilk test and the test Mann-Whitney test) were used in the empirical part, whereas the deduction method was used in drawing conclusions.

2. ENTERPRISE PROFITABILITY AS AN IMPORTANT TARGET OF ENTERPRISE FINANCE MANAGEMENT

In the economic practice enterprises pursue diverse objectives of a financial and non-financial character. Strategic goals, concerning creation of a mission and a strategy of a business entity should be considered as the most important ones (Pomykalska, Pomykalski 2007). Their proper performance allows achieving a competitive advantage on the market, they concern an implementation of a project of mergers and takeovers of competitive entities etc. Performance of interests of the most important stakeholders in the enterprise who should be understood very broadly, is also an important objective. A next bundle of objectives ensures success in a medium time period and concerns survival and company growth. They are realized by achieving the determined amount of cash flows or enterprise profitability, operational efficiency etc. Management of assets, sale, purchasing, logistics etc. should be considered as the most short-term goals (Pomykalska, Pomykalski 2007). Maximizing of wealth for shareholders, achieving profitability and a stable level of financial liquidity should be mentioned among the strictly financial goals (*Współczesna analiza finansowa,* 2004). Profitability of an enterprise and financial liquidity are without a doubt objectives of the short-term character, whereas maximizing of wealth for owners can be treated as a goal performed in the long period of time. A number and importance of objectives of non-financial character, mainly of a social character, increase with a development of the corporate social responsibility. With time they can constitute significant goals having operational importance at least, perhaps even strategic one (Story, Neves, 2015).

Nowadays, maximizing of wealth for shareholders remains invariably a very important financial goal of activity of business entities (Davies, Boczko, Chen, 2008). While dealing with the phenomenon in question in a more practical aspect in the contemporary enterprise it means maximizing of a share price or earnings per share (EPS). It is the most desirable course of action of the management board which is widely accepted by investors. Therefore, in the situation when investors will be the main, or the most influential stakeholder, the management board should implement their needs to a large extent. This is the case in particular for capital markets where public companies and the management board representing them are mainly assessed and accounted for from the point of view of implementing interests of owners. In big enterprises ownership and management functions are frequently separated, that is why in practice management boards do not always act in the best interest of owners. They often realize their own interests, frequently vested interests. Therefore, there is a need to perform additional control and monitor their doings and it results in forming so called agency costs (Miller, Fama 1972; Jensen, Meckling, 1976; Jensen, 1986). It is worth noting that in the case of high agency costs corporate value is generally lower (Lins, 2003; Novaes, 2003). According to K.C. Butler (2008) enterprises in practice do not only realize the demand of maximizing of wealth of shareholders but current goals of a short-term character are important as well. This objective does not seem to be so important as in the past. It is caused by complicated socio-environmental surroundings of an enterprise different from the past (Jones, Felps, 2013).

A next important objective is to generate positive cash flows. Positive cash flows are defined as dynamic liquidity of an enterprise (Gabrusewicz, 2005). Its implementation does not only enable a business entity to survive but it provides its dynamic development on basis of its own resources as well (Difabio, 2009). They generate information about the actually achieved added value in the enterprise. Moreover, they are strongly connected with the corporate value (Maślanka, 2004; Andrzejewski, Maślanka, 2016). However, they become more and more difficult in forecasting and analyzing. In opinion of some authors they are more useable while making useful decisions by investors than the information based on the accrual accounting principle (Davies, Boczko, Chen, 2008). However, it is worth noting that the highly profitable companies do not have generally any problems in achieving safe financial liquidity.

Generating positive financial profitability of an enterprise still remains a significant objective of business activity. It should be emphasized that it is the objective significantly connected with maximizing of a market value of an enterprise. Therefore, maximizing of the value takes place as a result of maximizing of profitability of capitals and optimization of a financial surplus (Bień, 2008). Thus, high profitability contributed to an increase in the value of capital of investors. High figures of the financial result are directly connected with creating the real value for shareholders (Haksever, Chaganti, Cook, 2004). In lots of business entities it constitutes a basic determinant of many decisions of an operating and short-term character, or even daily. According some authors maximizing of profitability is still the most important goal of operations (Elliott, Elliott, 2008). It is particularly significant in smaller business entities. To a large extent it is the basis for assessment of an enterprise and management of a business entity. Furthermore, many other objectives of a financial character are connected closely or convergent with the postulate of high profitability of an enterprise. However, generating the positive financial result cannot be the only criterion of making decisions (Maślanka, 2007). It is also worth noting that risk is not taken into account in the process of a measurement of the financial result. Additionally, methodology of its measurement is based on choices and subjective judgments of an accountant (Szczepankowski, 2007). The financial result can be described as of high quality if it is characterized by stability, predictability, decision-making usability and is subjected to a phenomenon of profit management to a small extent (Kędzior, 2016). The above assessment does not change the fact that that it is one of the most important measures of evaluating a business entity.

3. THE IFRS INFLUENCE ON THE LEVEL OF CONSERVATISM OF FINANCIAL RESULTS

The accounting standards applied have an impact on the level of the reported results which determine profitability of business entities to a large extent. Conservative standards of accounting impose use of the precautionary principle in a very strict way, or the prudence principle. The high level of conservatism usually means a lower level of the profits reported. Studies on the level of conservatism of particular accounting standards were made by L.H. Radebaugh, S. J. Gray and E. L. Black (2006). The American standards (US GAAP) were taken as a reference point. The Japanese, Spanish and German standards were recognized as the most conservative ones. The next places were taken up by the Belgian, Dutch, French and American standards and British ones turned out to the least conservative. The IFRSs should be considered as convergent with the British standards to a large extent. The authors emphasize that the difference in the value of the reported result between the Japanese and British standards can be up to twice the profit. Therefore, an influence of the standards applied on the level of the financial result is very high. The best way to assess similarity of various accounting standards is an attempt to compare the financial results of an enterprises reporting on basis of different accounting standards.

The greatest differences at the level of the reported profits, resulting from different accounting rules should be observed on the line of the Anglo-Saxon accounting and the continental accounting. Within the states applying the Anglo-Saxon accounting the following ones should be

mentioned: the United States, Great Britain, Australia, New Zealand, Canada or Netherlands. While the model of the continental accounting is characteristic for Germany, France, Italy, Belgium, Spain, Japan and Sweden. With time this classification should be slightly different. More purposeful classification should concern entities using the solutions based on the American accounting standards (US GAAP) and based on the International Financial Reporting Standards. However, it is worth pointing out that there are also differences in a scope of the reported financial result in the states belonging to one accounting model, caused differences in accounting rules. J. J. Glynn, J. M. Perrin, M. P. Murphy (2003) confirmed them for such states as Germany, France, Italy, Netherlands, Ireland and Belgium. Slight differences in the value of the reported financial results were observed for the United States of America and Canada (Duangploy, Gray, 2005). S. J. Gray, C. L. Linthicum and D.L. Street (2009) found relatively significant differences in the figures shown for the companies using the American accounting standards and accounting solutions based on the IFRSs. Summing up this part of consideration it should be emphasized that majority of the studies confirm, most frequently in the highly developed economies, that local accounting standards are more conservative comparing to the IFRSs, thus the enterprises using the IFRSs will, probably, generate higher financial results, that is their profitability will be also higher.

In Eastern Europe local accounting standards (Polish standards) and the IFRSs were compared, among others, by K. Grabiński and M. Kędzior (2007a). 30 biggest listed companies with regard to market capitalization, listed on the Warsaw Stock Exchange were the subject of the analysis. The Polish Accounting Act and the IFRSs were compared when the Polish companies had to adopt the IFRSs. The Polish accounting standards turned out to be more conservative comparing to the IFRSs. The financial results of the Polish companies calculated on basis of the Polish Accounting Act were about 8% lower comparing to the financial results reported on basis of the IFRSs. The similar results were obtained by A. Jaruga, J. Fijałkowska, M. Jaruga, Baranowska and M. Frendzel (2007). The financial result and the equity level made on basis of the Polish standards and the IFRSs were also analyzed. On basis of the IFRSs the value of the financial results and equity reported was higher. Therefore, a lower value of the financial results reported on basis of the national accounting standards should be assumed. K. Grabiński i M. Kędzior (2007b) analyzed an influence of applying the determined accounting standards on the level of profitability of Polish listed companies. Financial statements drawn up on basis of the Polish Accounting Act and the IFRSs were the subject of the analysis. Values of ROE, ROA, ROS were subjected to the analysis. The results of the empirical studies confirmed that slight differences were found only for the ROE calculated on basis of the Polish Accounting Act and the IFRSs.

4. RELATIONSHIPS BETWEEN APPLYING THE IFRSS AND PROFITABILITY IN THE CONTEXT OF RISK, COST OF CAPITAL AND A QUALITY OF THE FINANCIAL RESULT

A level of economic risk has an impact on profitability of business entities to a large extent. A higher risk level means potential problems with implementation and financing of future profitable investments and it may also cause higher cost of capital. Risk causes that the key stakeholders will expect additional securities from an enterprise what understandably generates additional costs and worsens profitability of a business entity.

It should be emphasized that a level of general risk of a company can be reduced by use of financial reporting of a high quality (the IFRSs) (Fijałkowska, Jaruga-Baranowska, 2007). A great number of financial and non-financial disclosures, characteristic for the IFRSs result in a decrease in the risk of investments for investors and that is why they will demand a lower rate of return (Ball, 2006). Individual investors can participate in appropriate allocation of capital at a stock exchange to a greater extent and they can compete more with specialized institutional investors. Thus, a scope of asymmetry decreases. Furthermore, financial reporting based on the IFRSs provides more information about the risk factors. The IFRSs allow reducing the risk connected with loss of

financial liquidity (Grabiński, Kędzior, 2007). The risk connected with excessive debt can be controlled to greater extent, or even reduced by use of accounting standards of a high quality (the IFRSs). Indebted companies should pay particular attention to the need for additional dealings with the environment. It may take place by additional disclosures of a financial or non-financial character, specific for the IFRSs. In such a way the costs of additional supervision and the agency costs can be reduced, and the capital cost can be decreased (Li, 2010). Additionally, accounting standards of high quality facilitate maintaining proper relations between owners, enterprise management and creditors. Credit conditions based on the data on basis of the IFRSs are more difficult to be manipulated.

Applying accounting standards of a high quality, such as the IFRSs often contributes to the lower cost of capital. The lower cost of capital results in increasing a number of potential feasible investment projects. Therefore, development possibilities of an enterprise increase. The lower cost of capital also means easier access to it, and that is why the risk of insufficient financial liquidity decreases. Finally, the lower capital cost increases profitability of an enterprise because it reduces costs of its financing.

Accounting quality which requires accounting standards of a high quality affects the accounting risk level and cost of capital. According to J. Francis, R. LaFond, P.M. Olsson and K. Schipper (2004) the cost of equity depends on financial data, based on the accrual accounting principles. Relationships between the accounting standards used and the equity cost were also studied by S. Li (2010). The author analyzed the European listed companies which pursuant to a regulation of the European Commission were obliged to prepare consolidated financial statements on basis of the IFRSs. The investigation results confirmed the lower cost of equity for the companies applying the IFRSs. The decrease in the equity cost was 47 basis points. However, a positive impact of applying the IFRSs on the capital cost was not uniform. Its highest decrease was found in the states of the strong legal executive which forces numerous accounting disclosures and presenting comparable accounting data. Similar investigation results were presented by L. Hail and S. Leuz (2009). They also found the relationship between the cost of equity capital and the accounting standards applied. The positive influence on the cost of capital was confirmed, although it is time-limited and its extent is not big. However, it should be noted that studies on the influence of the IFRS application on the cost of capital are very difficult because there are also other factors affecting the cost of capital and their impact is difficult to be eliminated. According to H. Daske, L. Hail, C. Leuz i R. Verdi (2008) a positive influence of the IFRS application on the capital cost is not supported sufficiently in the subject literature. The authors made their own studies in which they confirmed that the enterprises which implemented the IFRSs were characterized by the higher cost of capital comparing to other entities in the first year of their application. While comparing the amount of the cost of capital in relation to the year preceding implementation of the IFRSs its decrease about 26 basis points was confirmed (compare: Daske, 2006).

Accounting standards (the IFRSs) of a high quality are widely used at highly developed stock exchanges. They cause that the quality of accounting information is generally higher. It is particularly important for stock market investors because for obvious reasons they have worse access to financial data comparing to such institutions as big industry or institutional investors. Information of a high quality provided on time enables investors to make rational decisions much easier. Appropriate allocation of the capital is also easier for them (Deegan, Unerman, 2006). It is worth noting that the size and the quality of accounting disclosures on basis of the IFRSs is usually higher in relation to the local standards, thus the risk of accounting for investors decreases. Hence, they can require a lower rate of return for the capital entrusted to an enterprise. Therefore, it will be easier for the listed companies to obtain external financing in a form of a stock capital. A procedure of its obtaining will be also easier.

The empirical studies also confirm a positive impact of applying the IFRSs on the decrease in cost of debt. A. Florou, U. Kosi (2015) studied empirically if an implementation of accounting standards of a high quality improved ease of issue of corporate bonds. The empirical studies have confirmed that it is easier to obtain debt financing when the IFRSs are used by a business entity,

even if their application is mandatory. Moreover, the cost of debt financing is also lower. The authors mentioned above emphasize the costs of financing with corporate bonds are lower about 36,6 basis points for the companies using the IFRSs. What is interesting a positive effect of lowering the cost of financing with the corporate bonds is noticeable for the enterprises coming from the European Union. This phenomenon was not observed for the entities coming from outside the European Union. However, it should be noticed that that the similar effect was not confirmed for the availability of loans, or their interest. Slightly different results were obtained by T.Y. Chen, C.L. Chin, S. Wang, W.R. Yao (2015). The subject of the studies was the cost of bank loans for the enterprise applying the IFRSs. It has been verified empirically that lower threshold conditions based on the accounting data in a scope of the bank loans granted were required for the entities applying the IFRSs. However, a higher security in a form of specific fixed assets was expected. The enterprises of which accounting worsened obtained bank credits at a higher interest rate, they were also required greater securities in a form of fixed assets.

A positive impact of the implementation of the IFRSs on profitability will, probably, be greatest in the big business entities. The big business entities have sufficient resources, both fixed assets and financial, needed to implement the IFRSs. The cost of their implementation is relatively lower and less severe in the big enterprises (Bessieux-Ollier,Walliser, 2012). The cost of disclosing next information show degressive dynamics. Moreover, in the big enterprises the unit cost of information is divided by a great number of goods and services sold (Cuijpers, Buijink, 2005). According to the theory of political costs the big enterprises, in particular the profitable enterprises, should account additionally for their operations. It can be achieved by additional disclosures of a financial and non-financial character required by the IFRSs.

The quality of the financial result calculated on basis of the IFRSs is being improved. One of its most important measures is a scope of earnings management. In the opinion of Ipin, Parbonetti (2011) the quality of profits measured by its real management decreased after preparing the financial statements on basis of the IFRSs. However, the scope of management of profits was smaller in the states of the strong legal executive. In the future a decrease in profitability results in a higher level of management of profits. Therefore, the IFRSs do not eliminate this phenomenon, only they weaken it. S. Leventis, P.E. Dimitropoulos and A. Anandarajan (2011) are of the same opinion. The authors verified empirically that among the business entities which implemented the IFRSs the scope of management of profits was reduced significantly. The informative value of the profits on basis of the IFRSs was also improved and it is characterized by greater decision-making usability (Zeghal, Chtourou, Fourati, 2012). Thus, it should be assumed that profitability calculated on basis of the accounting data based on the IFRSs is characterized by better quality and sustainability, what is advantageous for many users of the financial statements.

5. RESULTS OF THE EMPIRICAL STUDIES

The financial statements of the public manufacturing companies coming from the selected states of the European Union constitute the empirical material. The population of the companies was divided into two groups: enterprises from Western Europe and Eastern Europe. The population of the enterprises from Western Europe included companies from Belgium, Finland, France, Germany, Greece, Italy, Netherlands, Sweden and Great Britain. Business entities coming from Latvia, Lithuania, Poland, Slovakia and Slovenia were analyzed in the group of the entities from Eastern Europe. Finally, 830 companies were analyzed, including 652 from Western Europe and 178 from Eastern Europe. The relationship with profitability for the companies using the IFRSs voluntarily or on the mandatory principle was analyzed. This is the only way in which the relationship of profitability with applying the IFRSs can be assessed effectively. From the point of view of the theory and economic practice it is advisable to investigate the above relationships in the companies applying the IFRSs voluntarily and obligatorily. The analysis was performed independently in the

states of Western Europe and Eastern Europe. The definitions of the variables calculated for the needs of the empirical studies are presented below:

- IFRS (1;0); if an enterprise applies the IFRSs, the variable is "1", if it uses local accounting standards the variable has value "0"
- ROE = 100%* result from operating activities/equity capital,
- ROA = 100%* result from operating activities/assets,
- ROS = 100%* result from operating activities/revenues from operating activities,
- EPS = result from operation activities/ a number of shares issued[1].

Applicability of the IFRSs in the population of the companies (table 1) was the subject of the analysis in the first place. In the entire population of the companies applicability of the IFRSs increases. In years 2012-2016 it was 64.46% - 68.19%. It should be borne in mind that applicability concerns both voluntary and mandatory use of the IFRSs. The level should be considered as stable, the barrier of applicability, probably, will be 70% level in the coming years. IFRS applicability in the sector of the manufacturing companies in the countries of Western Europe is much higher than in Eastern Europe and was 73.54%−76.07% in the period. Slight but visible dynamics of IFRS applicability should be noted in the developed states of the EU. In Eastern Europe IFRS applicability is much lower, although an increasing trend is also noticeable (32.02% - 39.33%). The potential for the IFRS applicability increase is definitely greater in Eastern Europe. It also results partly from a small comparative base in year 2012. The low applicability of IFRS in Eastern Europe is mainly due to the high detail of their solutions, the necessity to conduct numerous courses for financial and accounting staff, significant expenditures on software and relatively smaller financial and personnel resources of companies from Eastern European countries (Grabiński, Kędzior, 2007a).

Table 1. IFRS applicability in the selected states of the European Union in the public manufacturing companies for years 2012–2016

	2016	**2015**	**2014**	**2013**	**2012**
Entire population	**830**	**830**	**830**	**830**	**830**
IFRS (a number)	566	565	559	526	535
IFRS (% companies)	68.19%	68.07%	67.35%	63.37%	64.46%
Local GAAP (a number of companies)	264	265	271	304	295
Local GAAP (% companies)	31.81%	31.93%	32.65%	36.63%	35.54%
Western Europe	**652**	**652**	**652**	**652**	**652**
IFRS (a number)	496	496	496	467	478
IFRS (% companies)	76.07%	76.07%	76.07%	71.63%	73.31%
Local GAAP (a number of companies)	156	156	156	185	174
Local GAAP (% companies)	23.93%	23.93%	23.93%	28.37%	26.69%
Eastern Europe	**178**	**178**	**178**	**178**	**178**
IFRS (a number)	70	69	63	59	57
IFRS (% companies)	39.33%	38.76%	35.39%	33.15%	32.02%
Local GAAP (a number of companies)	108	109	115	119	121
Local GAAP (% companies)	60.67%	61.24%	64.61%	66.85%	67.98%

Source: author's own calculations on basis of Orbis Database

[1] EPS can be called a profitability ratio that is important for investors, the EPS informs how much the capital market is willing to pay for the unit of generated accounting profits (Shapiro, Balbirer, 2000). The EPS ratio is important for both current and potential investors of the company. It is used to create investment strategies on stock exchanges (Nowak, 2008).

Mean values of profitability ratios (ROE, ROA, ROS and EPS) (earnings per share) are presented in tables 2–5 below. The values of the ratio ROA in the analyzed period underwent significant fluctuations in the analyzed period. The highest values in the group of the states from Western Europe were observed for Belgium, United Kingdom and Germany, in the group of the states from Eastern Europe for Poland and Latvia. The lowest values in the analyzed groups of the states were observed for Greece, Sweden, Slovakia and Slovenia. There are differences between profitability of enterprises from Western and Eastern Europe.

Table 2. The values of the ratio ROA for the public manufacturing enterprises in the selected states of the EU for years 2012–2016 (mean values)

	ROA				
Country	**2016**	**2015**	**2014**	**2013**	**2012**
Belgium	5.61	8.97	6.41	9.24	2.18
Finland	4.04	5.64	7.15	7.38	1.88
France	9.80	4.72	5.34	5.96	2.02
Germany	5.75	6.72	8.55	7.67	2.97
Greece	0.63	0.24	1.03	1.73	1.88
Netherlands	6.52	6.65	7.97	9.14	3.72
Spain	5.87	4.92	5.58	6.94	3.75
Sweden	-0.37	0.58	0.65	6.71	-0.69
United Kingdom	5.13	6.73	7.32	8.28	4.67
Italy	2.85	2.91	4.29	5.23	4.67
Latvia	5.24	6.63	3.47	5.41	-3.65
Lithuania	4.58	3.55	2.37	6.90	2.12
Poland	5.05	5.64	5.56	6.60	4.62
Slovakia	-1.99	0.74	0.91	1.24	1.39
Slovenia	3.53	2.93	3.09	1.98	1.63
Total	4,66	4.72	5.41	6.11	2.82

Source: author's own calculations

The values of ROE within the population of the companies in question are presented in table 3. The values of ROE were subjected to greater differentiation than the values of ROA in particular years and states. In the group of the enterprises from Western Europe the highest ROE values were again for Great Britain, Belgium and Netherlands, the lowest for Sweden and Greece. In the entities coming from Eastern Europe the highest ROE values were found again for enterprises from Poland and Lithuania. The scale of differences between the ROE values for the enterprises from Western and eastern Europe is higher than for ROA.

Table 3. The values of the ratio ROE for the public manufacturing enterprises in the selected states of the EU for years 2012–2016 (mean values)

	ROE				
Country	**2016**	**2015**	**2014**	**2013**	**2012**
Belgium	28.65	10.59	16.42	25.20	6.93
Finland	13.46	10.83	15.42	14.75	0.84
France	17.98	9.09	10.84	9.44	9.03
Germany	14.86	16.50	20.98	25.86	9.56
Greece	-6.46	-5.01	3.19	5.61	7.02
Italy	11.66	13.91	16.32	23.53	12.01
Netherlands	15.58	15.16	17.61	21.18	12.23
Spain	22.67	6.49	10.74	6.81	7.36
Sweden	-19.09	-1.36	0.83	13.09	-14.23
United Kingdom`	12.18	19.03	16.65	23.82	20.90
Latvia	8.16	12.61	7.57	13.54	-1.92
Lithuania	3.93	3.23	2.90	13.27	6.80
Poland	11.30	5.65	17.12	-0.08	13.74
Slovakia	23.64	-15.83	-9.89	17.08	-0.26
Slovenia	6.92	5.72	7.01	5.37	2.66
Total	11.80	9.08	13.50	15.23	10.33

Source: author's own calculations

The ROS ratio values in the groups of the states in question are presented in table 4. In companies from Western and Eastern Europe a scale of differences in the ROS ratio value over the years was smaller than for ROE. In the business entities from Western Europe the highest ROS level was characteristic for Dutch, Spanish and British enterprises, the lowest level was found for Germany and France. In the states of Eastern Europe the highest values of the ratio were observed for Lithuanian and Polish enterprises, the lowest for business entities from Slovakia. Therefore, there is the greatest potential advantageous impact of applying the IFRSs on profitability of an enterprise from Eastern Europe.

Table 4. The values of the ratio ROS for the public manufacturing enterprises in the selected states of the EU for years 2012–2016 (mean values)

	ROS				
Country	**2016**	**2015**	**2014**	**2013**	**2012**
Belgium	4.03	6.58	-2.05	2.77	-2.03
Finland	-3.56	-0.75	5.45	6.71	1.49
France	7.29	1.25	4.57	5.96	1.54
Germany	4.53	5.55	7.14	6.56	2.07
Greece	-3.45	-3.66	0.26	1.07	1.79
Italy	3.33	4.48	4.76	6.86	5.85
Netherlands	6.77	6.09	7.71	11.80	2.96
Spain	9.87	6.32	6.86	10.68	1.30
Sweden	-0.54	-0.61	-0.68	5.10	3.52
United Kingdom	4.69	5.82	7.46	6.64	1.39
Latvia	6.44	5.33	3.30	4.27	-3.18
Lithuania	1.30	0.59	-1.64	3.42	0.06

Poland	5.60	-5.66	6.14	9.93	-4.48
Slovakia	-9.19	0.07	0.96	0.98	0.93
Slovenia	1.92	2.73	2.57	0.61	1.54
Total	2.68	0.44	2.05	3.07	-0.18

Source: author's own calculations

Values of the ratio EPS for the enterprises from Western and Eastern did not differ so significantly as in the case of ROE or ROS (table 5). In the business entities from Western Europe the highest EPS values were found for German, Belgian and Spanish enterprises, and the lowest values were obtained for the Greek and Swedish entities. Among the enterprises coming from Eastern Europe the highest values of the EPS ratio were found for the Slovakian, Slovenian and Polish companies, lowest for Latvian companies.

Table 5. The values of the ratio EPS for the public manufacturing enterprises in the selected states of the EU for years 2012–2016 (mean values)

	EPS				
Country	**2016**	**2015**	**2014**	**2013**	**2012**
Belgium	4.32	4.39	6.00	5.49	5.03
Finland	0.77	0.89	0.88	0.23	1.09
France	8.35	7.13	8.75	6.36	8.16
Germany	8.08	12.40	11.56	6.93	12.74
Greece	0.30	0.32	0.35	0.20	0.55
Italy	0.60	0.69	0.75	-0.14	0.67
Netherlands	1.82	1.83	1.41	0.32	1.02
Spain	2.79	2.92	3.12	2.61	2.55
Sweden	0.52	0.56	0.37	0.23	0.11
United Kingdom	0.41	0.19	0.38	0.40	0.57
Latvia	0.39	0.28	0.40	0.00	0.21
Poland	0.92	0.89	0.89	0.98	0,99
Slovakia	2.36	3.00	4.79	3.54	13.94
Slovenia	6.57	5.75	2.49	0.79	1.65
Total	3.09	3.63	3.76	2.48	4.08

Source: author's own calculations

In the further part the relationship of profitability with applying the IFRSs was the subject of the analysis. The analysis was performed separately for the enterprises from Western and Eastern Europe. In the enterprises from Western Europe the analyzed variable did not have a normal distribution in the companies using local GAAP and IFRS (p from the Shapiro-Wilk test below 0.05), that is why the analysis was performed by the Manna-Whitney test (table 6). Values p below 0,05 indicate these variables with which accounting practice is significantly related. EPS of the companies applying IFRSs was statistically significant lower than the companies applying local GAAP ($p<0.05$; the median lower for IFRS), and ROE, ROA and ROS were not significantly connected with accounting practice ($p>0.05$). The obtained results can be slightly surprising, thus applying the IFRSs does not differentiate significantly profitability of enterprises. The business entities from mature economies, issuing low cost securities, of a relatively low risk level do not need an additional element of corporate governance, which is applying the IFRSs, to achieve the required level of profitability.

Table 6. Relationships between profitability and the IFRS application in the selected public manufacturing enterprises in the selected states of Western Europe

Variable	Accounting practice	Mean value	SD	Me-dian	Min	Max	Q1	Q3	p
ROE	local GAAP	-6.73	62.37	5.39	-664.84	103.96	-2.75	13.16	p=0.222
	IFRS	-3.21	63.27	6.55	-921.43	741.05	-5.86	14.8	
ROA	local GAAP	-1.28	18.61	2.46	-97.97	52.76	-1.96	6.65	p=0.346
	IFRS	-0.23	15.14	2.96	-100.00	59.34	-2.91	7.25	
ROS	local GAAP	1.40	18.00	3.83	-95.32	75.93	-0.42	8.24	p=0.177
	IFRS	1.59	17.85	4.04	-99.4	82.60	-1.59	10.23	
EPS	local GAAP	7.26	37.14	0.74	-111.42	513.13	0.00	1.93	p<0.001
	IFRS	3.44	16.34	0.25	-41.56	249.01	0.00	1.46	

Source: author's own calculations

In the enterprises coming from Eastern Europe the analyzed variable did not have a normal distribution in the companies using local GAAP and the IFRSs (p from Shapiro-Wilk test below 0.05), and that is why the analysis was performed by the Manna-Whitney test. Values p below 0.05 indicate that ROA, ROS and ROE are significantly statistical higher in the enterprises applying the IFRSs. Hence, the results are different from the enterprises from Western Europe. The analysis points out to the fact that the IFRSs can have an advantageous impact on credibility of financial reporting, they can contribute to the lowered capital cost, or a decrease in risk of an enterprise. The companies from Eastern Europe are not, probably, so mature, financially stable and perceived advantageously on the capital markets as their equivalents from Western Europe, and that is why they, probably, need to substantiate their accounting by the IFRS application to a greater extent.

Table 7. Relationships between profitability and the IFRS application in the selected public manufacturing enterprises in the selected states of Eastern Europe

Variable	Accounting practice	Mean value	SD	Me-dian	Min	Max	Q1	Q3	p
ROE	local GAAP	-1.42	50.78	4.36	-698.12	386.07	-1.77	12.13	p<0.001
	IFRS	7.09	17.38	7.09	-78.63	90.29	2.04	12.12	
ROA	local GAAP	0.87	12.8	1.86	-88.5	68.54	-1.18	6.15	p<0.001
	IFRS	3.69	8.84	3.75	-49.66	45.11	1.06	7.16	
ROS	local GAAP	0.02	15.29	2.17	-91.56	74.79	-0.66	6.18	p<0.001
	IFRS	4.66	9.98	4.01	-56.27	57.48	1.42	8.82	
EPS	local GAAP	2.16	10.73	0.12	-50.1	164.6	-0.01	1.04	p=0.104
	IFRS	0.65	1.88	0.20	-4.41	12.31	0.05	0.54	

Source: author's own calculations

6. CONCLUSION

Profitability of an enterprises remains invariably a significant objective of operations of an enterprise. Generating profitability is rather a short-term goal of an operating character, although lots of current decisions are taken on basis of their influence on profitability. The relationships between profitability and the IFRS application have their theoretical grounds in the theories of agency, signaling and asymmetry. Management boards will be inclined to apply the IFRSs, if they contribute to improving profitability, an improvement of a company image and higher assessment of the company management, being the basis for calculating remuneration. Lower risk, lower cost of capital for the enterprises applying the IFRSs can be additional motivation. The IFRS implementation often results in an increase in the quality of profits and a decrease in the level of accounting conservatism. A scope of the IFRS application increases both in the states of Western and Eastern Europe; while in the states of Western Europe the level is almost unchanged and in the states of Eastern Europe the IFRS application scope increased almost about 30%. The preliminary analysis of the relationships between the IFRS application and profitability in the selected states of Western Europe indicates negligible relationships. These relationships are definitely stronger for the business entities coming from Eastern Europe. The potentially stronger relationships for these states may result from lower transparency, uncertainty of enterprises, instability of the activity conducted and also the higher risk, and that is why the IFRS influence on profitability of the business entities is greater. In addition, economic entities from Eastern Europe are characterized by a higher cost of capital and more conservative national accounting standards, hence the relationship between profitability and IFRS is stronger. In the longer term, the differences between the applicability of IFRS in enterprises from Western Europe and Eastern Europe should be reduced.

Among the research limitations we should distinguish the impact of the macroeconomic environment on the profitability factors, different in individual countries and the various development of the institutional environment of enterprises. In addition, the development of enterprises themselves different in Western and Eastern European countries, their various developmental opportunities, risk or demand for external capital made it difficult to conduct research and interpret the results.

Future research may involve analysis of correlations between profitability and IFRS for companies using them on a voluntary basis and applying IFRS mandatory. The dependencies in these groups of companies may be different. The analysis of the use of IFRS and the relationship between IFRS and profitability can be also carried out in different industries. It is also worth fixing the scale of the impact of applying IFRS on profitability more precisely comparing them with other factors influencing profitability.

BIBLIOGRAPHY

Andrzejewski, M. & Maślanka, T. (2016). *An informative function of cash flow accounts on an example of the listed companies in the construction branch*, [in:] J. Stofkova (ed.), *Medzinarodna vedecka konferencia ROZVOJ EUROREGIONU BESKYDY IX spolecensko-ekonomicke podmienky v regionoch v novom programovom obdobi EU: ekonomika – manazment – bezpecnost*, Zilinska Univerzita v Zilinia, Zilina, 7–16.

Andrzejewski, M. Maślanka, T. & Mazur-Maślanka, I. (2016). *International Financial Reporting Standards (IFRS) and an issue of comparability of assessments of financial standing of the companies listed on the Warsaw Stock Exchange made by the auditors in the reports on the audit of the financial statements*, [in:] *IFRS: Global rules & local use*, proceedings of the 4rd international scientific conference, Prague, September 30, 2016, Anglo-American University, Prague – Czech Republic, 56–65.

Ball, R. (2006). International Financial Reporting Standards (IFRS): pros and cons for investors. *Accounting and business research*, *36*(1), 5–27.

Barth, M. E., Cram, D. P. & Nelson, K. K. (2001). The accounting review. *Accruals and the prediction of future cash flows* , *76*(1), 27–58.

Bessieux-Ollier, C. & Walliser, E. (2012). Why Firms Listed on an Unregulated Financial Market Comply Voluntarily with IFRS: An Empirical Analysis with French Data. In: *Comptabilités et Innovation*, 1–36.

Bień, W. (2008), *Zarządzanie finansami przedsiębiorstwa,* Warszawa, Difin.

Brigham, E.F. & Gapenski, L.C. (2000). *Zarządzanie finansami*, Warszawa, PWE.

Butler, K. C. (2008), *Multinational Finance*. West Sussex, John Wiley & Sons.

Chen, T. Y., Chin, C. L., Wang, S. & Yao, W. R. (2015). The effects of financial reporting on bank loan contracting in global markets: Evidence from mandatory IFRS adoption. *Journal of International Accounting Research*, *14*(2), 45–81.

Cuijpers, R., & Buijink, W. (2005). Voluntary Adoption of Non-local GAAP in the European Union: A Study of Determinants and Consequences. *European Accounting Review*, *14*(3), 487–524.

Daske, H. (2006). Economic Benefits of Adopting IFRS or US-GAAP–Have the Expected Cost of Equity Capital Really Decreased? *Journal of Business Finance & Accounting*, *33*(3–4), 329–373.

Daske, H., Hail, L., Leuz C. & Verdi, R. (2008). Mandatory IFRS reporting around the world: Early evidence on the economic consequences. *Journal of Accounting Research, 46*(5), 1085-1142.

Davies, T., Boczko, T. & Chen, J. (2008). Strategic Corporate Finance. New York, *McGraw-Hill*.

Deegan, C. & Unerman, J. (2006). *Financial Accounting Theory*. London, McGraw Hill.

Difabio, Ch. (2009), Extreme Makeover for Financial Statements. *Financial Executive*. 44–47.

Donaldson, L. & Davis, J. H. (1991). Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of management*, *16*(1), 49–64.

Elliott, B. & Elliott, J. (2011). *Financial Accounting and Reporting*. London, FT Prentice Hall.

Ferrer, R. C. (2016). The Effects of International Financial Reporting Standards Disclosure for small and medium Enterprises (IFRS for SMES) On Profitability under the Retail Sector. *Academy of Accounting & Financial Studies Journal*, *20*(2), 67–73.

Fijałkowska, J. & Jaruga-Baranowska, M. (2007). The Impact of IAS/IFRS Adoption on the Presentation of the Financial Position and Performance of Polish Listed Companies. *Zeszyty Teoretyczne Rachunkowości*, no. 41, 97–114.

Florou, A., & Kosi, U. (2015). Does mandatory IFRS adoption facilitate debt financing? *Review of Accounting Studies*, *20*(4), 1407–1456.

Francis, J., LaFond, R., Olsson, P. M. & Schipper, K. (2004). Costs of equity and earnings attributes. *The Accounting Review*, *79*(4), 967–1010.

Gabrusewicz, W. (2005). *Podstawy analizy finansowej*, Warszawa, Polskie Wydawnictwo Ekonomiczne.

Glynn, J .J., Perrin, J. & Murphy, M. P. (2003). *Rachunkowość dla menedżerów.* Warszawa, Wydawnictwo Naukowe PWN.

Grabiński, K. & Kędzior, M. (2007a). Bilanse według ustawy o rachunkowości i Międzynarodowych Standardów Rachunkowości*, Rachunkowość*, No. 11, s. 7–21.

Grabiński, K. & Kędzior, M. (2007b). Wpływ zastosowania Międzynarodowych Standardów Rachunkowości na wartość analityczną sprawozdań finansowych spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie, [w]: *Rachunkowość w teorii i praktyce*, pod red W. Gabrusewicza. Poznań, Wydawnictwo Akademii Ekonomicznej.

Gray, S. J., Linthicum, C .L. & Street, D. L. (2009). Have 'European' and US GAAP Measures of Income and Equity Converged under IFRS? Evidence from European Companies Listed in the US. *Accounting and Business Research*, *39*(5), 431–447.

Guggiola, G. (2010). IFRS Adoption In The E.U., Accounting Harmonization and Markets Efficiency: A Review. *The International Business & Economics Research Journal*, *9*(12).

Hail, L. & Leuz, C. (2007). Capital market effects of mandatory IFRS reporting in the EU: Empirical evidence. papers.ssrn.com

Haksever, C. Chaganti, R. & Cook, R. G. (2004). A Model of Value Creation: Strategic View. *Journal of Business Ethics*, Vol. 49, 291–305.

Ipino, E. & Parbonetti, A. (2011). Mandatory IFRS adoption: The trade-off between accrual and real-based Earnings Management.

Story, J. & Neves, P. When corporate social responsibility (CSR) increases performance: exploring the role of intrinsic and extrinsic CSR attribution. *Business Ethics: A European Review,* 2015/24 (2), 111–124.

Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance and Takeovers, *American Economic Review*, Vol. 2, 323-329.

Jensen, M. C. & Meckling, W. H. (1976). Theory of the Firm Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, *3*(4), 305–360

Lins, K. V. (2003). Equity ownership and firm value in emerging markets. *Journal of financial and quantitative analysis*, *38*(1), 159–184.

Jones, T. M. & Felps, W. (2013). Shareholder Wealth Maximization and Social Welfare: A Utilitarian Critique, *Business Ethics Quarterly*, *23*(2), 207–238.

Kędzior, M. (2016). Zależność rentowności przedsiębiorstw od czynników mikroekonomicznych, makroekonomicznych i instytucjonalnych w wybranych państwach Unii Europejskiej. *Zeszyty Naukowe, Seria Specjalna Monografie*, nr 242, Kraków, Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie, 1–296.

Leventis, S., Dimitropoulos, P. E. & Anandarajan, A. (2011). Loan Loss Provisions, Earnings Management and Capital Management under IFRS: The Case of EU Commercial Banks. *Journal of Financial Services Research*, *40*(1–2), 103–122.

Li, S. (2010). Does Mandatory Adoption of International Financial Reporting Standards in the European Union Reduce the Cost of Equity Capital? *The Accounting Review*, *85*(2), 607–636.

Miller, M. & Fama, E. F. (1972). *The Theory of Finance.* New York, Holt, Rinehard and Wolson.

Novaes, W. (2003). Capital structure choice when managers are in control: Entrenchment versus efficiency. *The Journal of Business*, Vol. 76.

Nowak, E. (2008). *Analiza sprawozdań finansowych*, Warszawa, Polskie Wydawnictwo Ekonomiczne.

Palea, V. & Scagnelli, S. D. (2017). Earnings Reported under IFRS Improve the Prediction of Future Cash Flows? Evidence from European Banks. *Australian Accounting Review*, *27*(2), 129–145.

Pomykalska, B. & Pomykalski, P. (2007). *Analiza finansowa przedsiębiorstwa.* Warszawa, Wydawnictwo Naukowe PWN.

Radebaugh, L.H., Gray, S.J. & Black, E. L. (2006). *International Accounting and Multinational Enterprise.,* New Jersey, John Wiley & Sons.

Shapiro, A. C. & Balbirer S. D. (2000). *Modern Corporate Finance, a Multidisciplinary Approach to Value Creation,* New Jersey, Prentice Hall.

Szczepankowski, P. (2007). *Wycena i zarządzanie wartością przedsiębiorstwa*. Warszawa, Wydawnictwo Naukowe PWN.

Współczesna analiza finansowa (2004). pod red. B. Micherdy, Zakamycze, Kantor Wydawniczy Zakamycze.

Zeghal, D. Chtourou, S. M. & Fourati, Y. M. (2012). The effect of mandatory adoption of IFRS on earnings quality: Evidence from the European Union. *Journal of International Accounting Research*, *11*(2), 1–25.

REALITY OF E-REPORTING OF ANNUAL ACCOUNTS OF SMEs IN THE EU – McDonald´s, BurgerKing, KFC and Subway CASE STUDY

Radka MacGREGOR PELIKÁNOVÁ
Anglo-American University, Prague, Czech Republic
radkamacgregor@yahoo.com

Robert MacGREGOR
Free-lance writer
robertkmacgregor@yahoo.com

Abstract
The European e-Justice portal is a centralized platform for the publication of corporate, financial and accounting information about European businesses. Directive 2013/34/EU provides the compulsory publication of financial statements of businesses as stated in Directive (EU) 2017/1132 via e-Justice Portal, technically defined by Regulation (EU) 2015/884. This EU setting under the auspices of Europe 2020 is complemented by the national laws of EU member states. The e-Justiced portal should be placed where all this data is migrated and where European SMEs are able to not only look for information about their business partners and competitors, but as well post information about them, even if this is not required by the EU law and/or national laws. Since the e-Justice portal has been operating for several years, updated and improved, its current version should be assessed and tested whether it is a real, transparent and free source of information about SMEs. Therefore, after a legislative overview, a practical case study is performed. Similar SMEs incorporated in the majority of EU member states are selected (McDonald´s, BurgerKing, KFC and Subway) and the availability of their annual accounts is assessed. The results do not support the pro-EU hypothesis that these annual accounts are available in a similar manner and under similar conditions. Namely, despite all the e-transparency rhetoric, it seems that many national business registers and/or SMEs are not ready to freely go for an e-reporting of annual accounts and so an asymmetry of information and a potential for unfair competition is created.

Keywords: *European e-Justice Portal, annual accounts, publication, SMEs*

1. INTRODUCTION

The global highly competitive post-modern society with its complexity, integration issues (Piekarczyk, 2016) and focuss on digitalization (Vivant, 2016) inevitably makes the EU and EU laws face many challenges in various fields (Večeřa, 2012). Despite the onging blurred distinction between historical truth and reality (Chirita, 2014), the EU firmly adhers to the doctrine of the famous four freedoms of movement in the single internal market (Cvik & Pelikánová, 2016), where business players, regardless of their business forms and legal names (businesses, undertakings enterprises, companies, etc.) should compete in a free and transparent manner (MacGregor Pelikánová, 2012). Indeed, the EU and the EU law show little consistency for the formal law terminology in this respect and use interchangeably various legal and economic terms, while clearly defining only one of them – the Small and small and medium-sized enterprises (SMEs), see below. SMEs are critical for the EU and represent “99% of all businesses in the EU” (EC, 2018). This is fully reflected by the current ten year strategy, Europe 2020, which has a trio of priorities – smart, sustainable and inclusive growth, and aims to develop the technological and other potentials of a European economy (Balcerzak, 2016a), especially in the digital setting (MacGregor Pelkánová, 2012). Hence, the EU attempts to reach a harmonization, if not unification, of the digital providing of information about and for European businesses, including SMEs (MacGregor Pelikánová & MacGregor, 2017), via the common e-platform launched by the EU, European e-Justice portal, and in particular its section Business registers, in member states with corporate data and annual

accounts regarding European businesses. Among other factors, this data might be critical for financial accounting, tax accounting and even managerial accounting (Jindřichovská & Kubíčková, 2016 and 2017) and both create or destroy a competitive advantage. Such a transparency, digital free availability and relative consumer-friendliness fits nicely in the 21st century and greatly reflects demands and challenges of the global economy.

Although, the EU law does not require directly and compulsory European SMEs to provide such information via the e-Justice portal, there is a clear desire both on the EU and national states' levels to populate the e-Justice Portal with corporate data and annual accounts regarding all European businesses(MacGregor Pelikánová & MacGregor, 2017). However, this desire might have different nuances, intensity and genuiness.

On the global stage, the EU has to speak with one voice to counter a plethora of political, military and economic crises. Internally, it needs to foster cohesion in spite of the many events that threaten the EU at its core. If we look at the EU evolution over the past decades, substantial progress has been made in terms of building an internal market and an economic and monetary union, albeit not without problems, as the 2008 crisis has shown actually as if the EU mostly thinking in economic terms, hoping that economic solutions will fix all current problems at once (Staníčková, 2017; Melecký, 2018). Indeed, the globalization and digitalization is acknowledged by the EU and all EU member states, but still these states and their businesses share different social, political and economic traditions (MacGregorPelikánová, 2017) and ultimately each of them embraces a different approach to the publication of SMEs annual financial statements, consolidated financial statements and related reports in the context of social responsibility (Horváth et al., 2017). So far, the EU has not fully crossed the Rubicon and does not order Europeans SMEs to provide their annual accounts online via the e-Justice portal. Hence, the current e-Justice portal testifies about the true feelings about the central, transparent, free and digital publication of annual accounts, financial statements and to the access to such data.

Franchisees are, by the very nature of their business conduct, SMEs. The pionnering pilot case study selected a rather homogenous group of SMEs from the same industry, operating in the entire EU with a similar or at least comparable business strategy, culture and results and adhering to the same operation model entailing franchises – namely McDonald´s, BurgerKing, KFC and Subway. Do these franchisees and their EU member states adhere fully, partially or not all to the idea of the free e-posting of annual accounts via e-Justice portal? If not, why and what are the ramifications? A legislative and literature review regarding the (lack) of the duty to do e-publishing of annual accounts by SMEs (2.) is followed by the information aobut the data and methods (3.) and leads to the exploration of the e-Justice portal (4.), namely its setting and operation (4.1.) and the availability of annual accounts provided via the e-Justice portal about selected SMEs – McDonald´s, BurgerKing, KFC and Subway (4.2.–4.5.). The yield results and related discussion (5.) regarding the confirmation or rejection of the pro-EU hypothesis that these annual accounts are available in a similar manner and under similar conditions lead to rather surpring conclusions with important ramifications (6.) Indeed, the presented pilot case study suggests that the reality about e-reporting of annual accounts is far behind the glorifying proclamations and that EU member states and nations are more different in their commitment regarding e-reporting and perhaps in other aspects than the Europe 2020 believes.

2. LEGISLATIVE AND LITERATURE REVIEW

Continental law jurisdictions prevail in the EU and their inclination to formalism and to keeping central registers is reflected by the EU strategies, including Europe 2020 (MacGregor Pelikánová 2014). These common law jurisdictions have an inclination to pragmatism and informalism and thus the idea of a central Business register appears not *prima facia* at the heart. However, the digitalization and the employment of the e-platform via Internet applications are clearly products of the common law environement and thus the e-publication of annual accounts via the EU central

e-Justice portal might be ultimately even closer to the Europe 2020 expectations. Indeed, the post-Lisbon EU has both supranational and intergovernmental natures and has normative and other characteristics centered around the concept of the single market with significant institutional features and a competing interest group (Damro, 2012). The post-Lisbon EU law penetrates into national laws of EU member states as an occupying authority on a foreign soil, by making use of a national procedural setting to directly incorporate and enforce its norms with the national jurisdiction of the EU member state (Azolai, 2011). Its constitutional setting represents the primary EU law and includes the the Treaty on EU ("TEU"), Treaty on the functioning of EU ("TFEU") and Charter of fundamental rights of the EU ("Charter") and is reflected by Europe 2020. Along with its trio of priorities, Europe 2020 underlines its focus on SMEs and identifies its seven flagship initiatives „Digital agenda for Europe" and "Innovation Union." (EC, 2010). These intiatives should boost innovation, transparency and competitiveness, which are needed for SMEs and at the same are far from being a spontaneous, market-based process (Pohulak-Żołędowska, 2016). At the same time, these initiatives lead to an increase of compulsory financial and even not financial reporting dutin for all businesses, including SMEs (Pakšiová & Lovciová, 2018).

Europe 2020 is a product of the European Commission, which has been impacted by both formal and informal institutions (Pasimeni & Pasimeni, 2016). It is a product conceived in order to create economic dominance of the EU on the global market (Stec & Grzebyk, 2017). A closer study of Europe 2020´s wording and its application reveals that this strategy has many over-ambitious features, wants to demand achievements which are out of the scope of EU jurisdiction and competence and which do not really increase competitiveness (Erixon, 2010). It is even suggested that Europe 2020 magnifies the differences between EU member states (Çolak & Ege, 2013), both on a macro-economic level (Lajtkepova, 2016 & Balcerzak, 2016b) and micro-economic level, and that Europe 2020 is a failure due to the wrong setting and application by the EU as well as due to the insufficient efforts of many European economies, especially the most important ones (Balcerzak, 2015). For example, the increase of the compulsory reporting duty along with the lack of appropriate standards make the drive for more transparency and information futile and contra-productive, i.e. businesses have to spend efforts on reporting and this not synchronized reporting produces produce a number of meaningless data unable to provide useful information and allow comparison (Petera, Wagner & Pakšiová, 2017).

This impression of a rather unrealistic setting trying to address very realistic goals needs to be scrutinized, corrected, confirmed and/or rejected by scientifically dealing with each individual aspect, such as the e-reporting of annual accounts of SMEs. In this respect, an overview of both primary and secondary EU law related to the e-reporting of annual accounts of SMEs is needed. Regarding the primary EU law, the classic constitutional trio needs to be analyzed. The TEU aims towards a highly competitive social market economy while promoting scientific and technological advances (Art. 3), while TFEU focuses in more detail on the internal market, including provisions covering the right of establishment (Art. 49 et foll.), capital and payments (Art. 63 et foll.) and even taxation (Art. 110 et foll.) and consumer protection (Art. 169). In addition, TFEU covers economic cohesion (Art. 174 et foll.) and administrative cooperation (Art. 197). The Charter incorporates the freedom to conduct a business (Art. 16), right to property (Art. 17), the consumer protection (Art. 38) and right to good administration (Art. 41) along with the right of access to documents (Art. 42). Regarding secondary EU law, which must be in compliance with the primary EU law and which further develops the primary EU law, two Directives and one Regulation are to be indicated in this context – (i) Directive 2013/34/EU of 26th June, 2013 on the annual financial statements, consolidated financial statements and related reports ("Directive 2013"), (ii) Directive (EU) 2017/1132 of the European Parliament and of the Council of 14 June 2017 relating to certain aspects of company law ("Directive 2017), which replaced the 2009/101/EC of 16th September, 2009 on the coordination of safeguards ("Directive 2009") and (iii) Commission implementing regulation (EU) 2015/884 of 8th June, 2015 establishing technical specificaitons and procedures required for the system of interconnection of registers established by Directive 2009 ("Regulation 2015") (MacGregor Pelikánová & MacGregor, 2017).

Directive 2013 defines, in Art. 3, SMEs as an undertaing not exceeding the limits of at least two of three criteria (balance sheet EUR 20 million, net turnover EUR 40 million and average number of employees during the financial year 250) while Commission Recommendation 2003/361/EC concerining the definition of micro, small and medium-sized enterprises ("Recommendation 2003) defines SMEs as enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million. Despite certain definition discrepancies, it is clear that SMEs, which represent way over 90% of business worldwide and even in the EU, are critical, and not only in the sphere of the economy. Namely, in the EU they account for about two-thirds of total employment, ranging from 53 % in the United Kingdom to 86 % in Greece, and they contribute 57 % of value added in the EU (Ugurlu & Jindřichovská, 2017).

SMEs fitting the Directive 2013, i.e. not all SMEs according to Recommendation 2003, might be partially relieved from the general duty of publication set by Art. 30 of the Directive 2013, i.e. *" 1. Member States shall ensure that undertakings publish within a reasonable period of time, which shall not exceed 12 months after the balance sheet date, the duly approved annual financial statements and the management report, together with the opinion submitted by the statutory auditor or audit firm referred to in Article 34 of this Directive, as laid down by the laws of each Member State in accordance with Chapter 2 of Directive 2009/101/EC…."* The relievement is set by Art. 31 of the Directive 2013*, i.e. "1. Member States may exempt small undertakings from the obligation to publish their profit and loss accounts and management reports. 2. Member States may permit medium-sized undertakings to publish: (a) abridged balance sheets …(b) abridged notes to their financial statements …"*

Directive 2009 demanded a compulsory disclosure by companies of "*the accounting documents for each financial year …"* (Art. 2) via a national Business Register (Art. 3) in a digital and interconnected manner (Art. 3a and Art. 3b). This interrelated system had to allow a free of charge exchange of information and the fee charged for obtaining documents cannot exceed administrative costs (Art. 3c and Art. 3d). The European central e-portal for that (Art. 4a) was offered by the Commission while using the website e-justice.europa.eu, i.e. it is the e-Justice Portal.

Directive 2017 repealed the Directive 2009 and by its Art. 14 demands the disclosure of "*at least the following documents and particulars: (a) the instrument of constitution, and the statutes if they are contained in a separate instrument; … (f) the accounting documents for each financial year which are required to be published in accordance with Council Directives 86/635/EEC (1) and 91/674/EEC (2) and Directive 2013/34/EU…*". Even more specifically, Directive 2017 in its Art. 16 defines the disclosure in the register by stating "*1.In each Member State, a file shall be opened in a central, commercial or companies register ('the register'), for each of the companies registered therein. Member States shall ensure that companies have a unique identifier allowing them to be unequivocally identified in communications between registers through the system of interconnection of central, commercial and companies registers established in accordance with Article 22(2) ('the system of interconnection of registers'). … 'by electronic means' shall mean that the information is sent initially and received at its destination by means of electronic equipment for the processing (including digital compression) and storage of data, and entirely transmitted, conveyed and received in a manner to be determined by Member States by wire, by radio, by optical means or by other electromagnetic means. 3.All documents and particulars which are required to be disclosed pursuant to Article 14 shall be kept in the file, or entered in the register; the subject matter of the entries in the register shall in every case appear in the file. Member States shall ensure that the filing by companies, as well as by other persons and bodies required to make or assist in making notifications, of all documents and particulars which are required to be disclosed pursuant to Article 14 is possible by electronic means. … "* Directive 2017 defines the System of interconnected registerers in Art. 22 by stating "*1.A European central platform ('the platform') shall be established. 2. The system of interconnection of registers shall be composed of: — the registers of Member States, — the platform, — the portal serving as the European electronic access point."*

The Regulation 2015 is much less complex and represents a technical and operational document defining the Business Registers Interconnection System ("BRIS") as e-communication via Web-services system which employs Internet protocols, such as HTTPS, and standard communication protocols, such as Simple Object Access Protocol ("SOAP"). In addion, the Regulation 2015 inlcudes security standards, methods of exchange and the list of data to be exchanged. Interestingly, it explicitly states that the BRIS service is 24/7 with an availability rate of at least 98% excluding scheduled maintenance (MacGregor Pelikánová & MacGregor, 2017).

Hence, it can be summarized that, despite the byzantine complexity generated by Directive 2013, Directive 2017 and still Directive 2009, it can be implied that the current EU and Europe 2020 desires and partially even demands the e-publication of annual accounts via e-Justice portal. Perhaps SMEs are not fully subject to this duty, perhaps this duty is not fully sanctioned, perhaps this duty is not fully enforced … nevertheless, it cannot be denied that European SMEs are expected to file with their national business registeres their annual accounts in an e-format and these national business registers are expected to allow the migration of such a data into the centralized BRIS on the e-Justice Portal. And what is the reality? Is e-reporting of annual accounts of European SMEs a reality or a chimera?

3. DATA AND RESEARCH METHODS

The assessement of the reality of the e-reporting of annual accounts via e-Justice portal can be scientifically and academically performed by the holistic Meta-Analysis (Silverman, 2013), entailing the legislative and technical setting of the e-Justice Portal and its operation via a pilot case of a rather homogenous group of SMEs from the same industry, following basically the same business model (franchise) and active in the majority of the EU member states. Hence a multi-disciplinary search of primary and secondary sources, along with a field observation should provide a sufficient foundation for such an analysis. Indeed, the quantitative research and data are to be complemented by qualitative research, along with critical closing and commenting and refreshed by socratic questioning (Areeda, 1996).

The pilot case study works with a rather small sample and hence its quantitative insufficiency needs to be offset by the quality generated by the selection of the involved sample. The qualification of SMEs from the same industry and following the franchise model, which are successful across the EU, is fully met by the fast food franchises – McDonald´s, BurgerKing, KFC and Subway. Further, these SMEs meet the general description of EU SMEs as independent and not belonging to an enterprise grouping (Ugurlu, E. & Jindřichovská, 2017). The e-Justice Portal is to be assessed and the word "McDonald´s" or "BurgerKing" or "KFC" or "Subway" is to put in in the search mask. The used of this terms reflects typical franchise arrangements leading to the incorporation of these terms in the business (company) names of the franchise beneficiaries.Thereafter, the franchise businesses satisfying the SME definition, based on both the Directive 2013 and Recommendation 2003, are indentified (always one per EU member state) and then it is attempted to obtain their annual accounts. A number of hundred SMEs (4 franchises x cca. 20 jurisdictions) is to be checked, i.e. whether their annual accounts unts are available and, if yes, what are the conditions, from what year these annual accounts are and what fee is to be paid. The pro-EU hypothesis is that these annual accounts are available about all these business from all EU member states and this in a similar manner and under similar conditions. Namely, that this data is provided transparently and that there are not critical differences between target SMEs and their EU member states.

4. CASE STUDY – ANNUAL ACCOUNTS PROVIDED VIA E-JUSTICE PORTAL

The case study will be performed while using the rather homogenous group of „fast food" companies satisfying the SMEs definition and rather successfully operating within the entire EU while using the franchise model. The availability of annual accounts and the possible price for it will be tested on the e-Justice Portal. Hence firstly, the technical setting and search operation will be described (4.1) and then the search regarding each type of companies in the entire EU tested (4.2.–4.5.).

4.1 e-Justice Portal – Setting and search operation

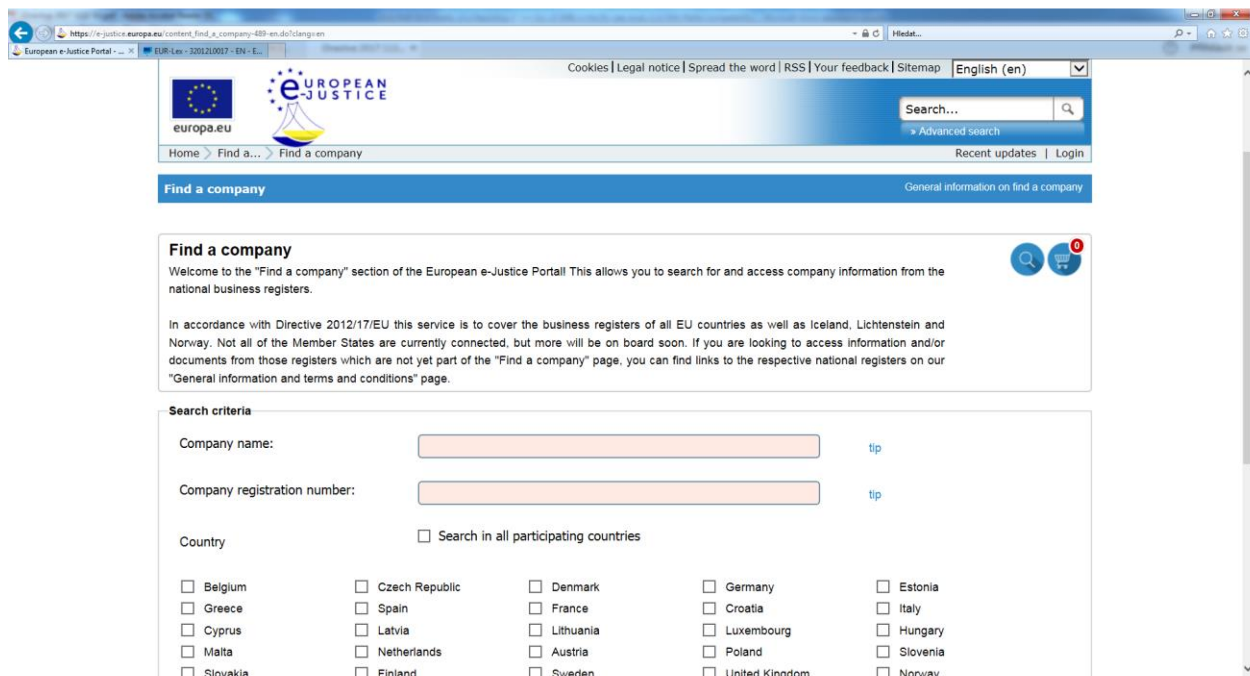
The European Commission created the e-Justice Portal and placed it on the domain e-justice.europa.eu belonging under the TLD .eu (MacGregor Pelikánová & MacGregor, 2015). Therefore the website e-Justice offers a number of webpages providing various functions and information (MacGregor Pelikánová & MacGregor, 2016), i.e. one of the many webpages is labelled „Registers" and leads to Business Registers, Land Registers and Insolvency Registers, see Figure 1.

Figure 1. European e-Justice Portal / Registers – https://e-justice.europa.eu/home.do?plang=en&action=home

Source: Prepared by authors based on European e-Justice portal (Print Screen)

Once the e-Justice Portal „Register" is accessed and the „Business Registers" option selected, there appears the choice between the search within "Business Registers at European level" or "National Business Registers." Since, by the operation of Directive 2017 and Regulation 2015, the interconnected BRIS was launched in 2017, conducting a search within "Business Registers at European level", where data from all national Business Registers is migrated and the centralized search is possible, seems as the appropriate choice under the auspices of the Europe 2020. It results in access to the webpage with a search mask "Find a company" shown in Figure 2.

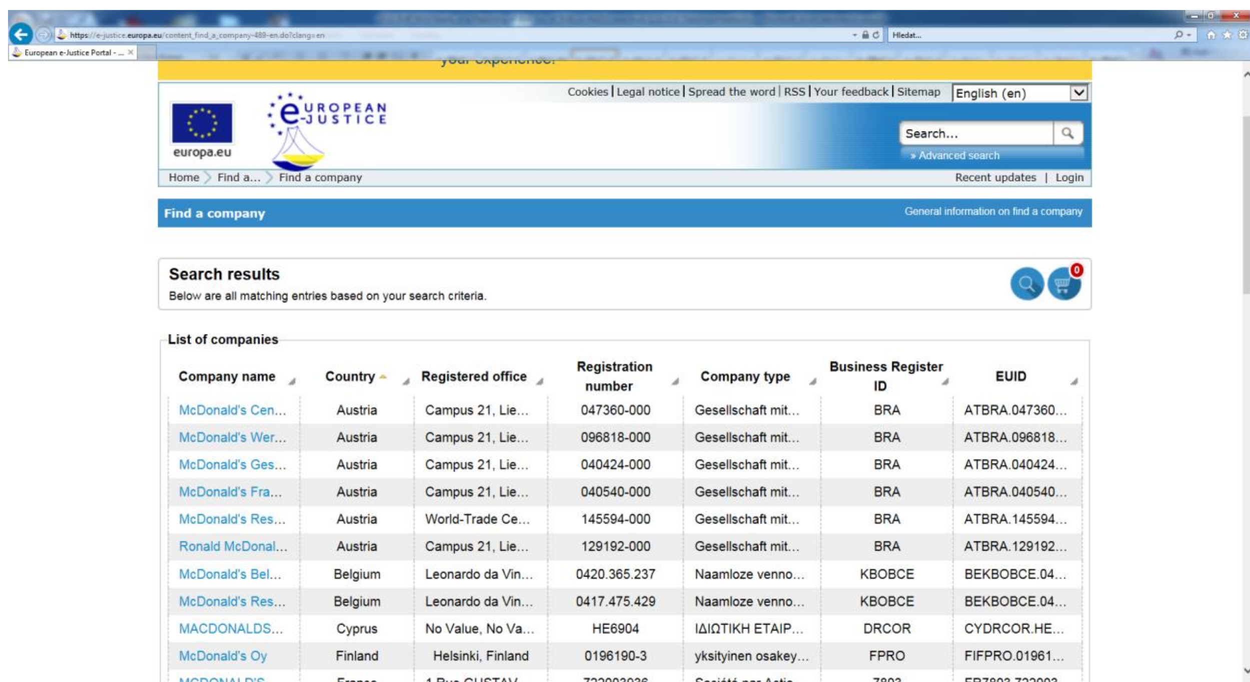
Figure 2. European e-Justice Portal / Registers / BRIS – https://e-justice.europa.eu/content_find_a_company-489-en.do?clang=en



Source: Prepared by authors based on European e-Justice portal (Print Screen)

After the company name is indicated, such as „McDonald´s," along with EU members states to be involved in the search, it is necessary to agree to the terms and conditions and to put in the generated security code. After few seconds, the system generates a list of companies including the term „McDonald´s" in their names with basic corporate information on these companies plus EUID number, see Figure 3

Figure 3. European e-Justice Portal / Find a company / Search Results – https://e-justice.europa.eu/content_find_a_company-489-en.do?clang=en



Source: Prepared by authors based on European e-Justice portal (Print Screen)

By clicking on one company, there might (or even should) be the informatio about the capital, to verify the SMEs criteria, and the link to a pdf with the annual accounts to be delivered via the „shopping cart" and for the possible price such as e.g. EUR 8.80, see Figure 4.

Figure 4. European e-Justice Portal / Find a company / Search Results / McDonald´s France – https://e-justice.europa.eu/content_find_a_company-489-en.do?clang=en

Find a company — General information on find a company

MCDONALD'S FRANCE (France)
This page presents the details of the selected company and lists the documents or pieces of information available in relation to the company.

Company details

Registered office	1 Rue GUSTAVE EIFFEL, Guyancourt, France
Registration number	722003936
Company type	Société par Actions Simplifiée Unipersonnelle
Business Register	VERSAILLES
EUID	FR7803.722003936

Information available

+ Add to shopping cart

Document	Date	Language	Format	Price	Availability
Document (Article R.12…	12/08/2018	fr	PDF	2.94 EUR	Unavailable on the Portal
Annual accounts (Articl…	31/12/2016	fr	PDF	8.80 EUR	Unavailable on the Portal
Annual accounts (Articl…	31/12/2015	fr	PDF	8.80 EUR	Unavailable on the Portal
Annual accounts (Articl…	31/12/2014	fr	PDF	8.80 EUR	Unavailable on the Portal
Annual accounts (Articl…	31/12/2013	fr	PDF	8.80 EUR	Unavailable on the Portal
Annual accounts (Articl…	31/12/2012	fr	PDF	8.80 EUR	Unavailable on the Portal
Annual accounts (Articl…	31/12/2011	fr	PDF	8.80 EUR	Unavailable on the Portal

Source: Prepared by authors based on European e-Justice portal (Print Screen)

Once the shopping cart is clicked and the email address given, and possibly the price paid, there appears a list of the companies with the link to the pdf of their annual accounts to be downloaded.

Figure 5. European e-Justice Portal / Find a company / Search Results / McDonald´s Annual Accounts – https://e-justice.europa.eu/content_find_a_company-489-en.do

Cookies | Legal notice | Spread the word | RSS | Your feedback | Sitemap — English (en)
europa.eu — e-JUSTICE — Search… — » Advanced search
Home > Find a… > Find a company — Recent updates | Login

Find a company — General information on find a company

Order 5033284d-85d6-441f-9a41-daa435f11692
This page presents the details of your order

Order details

Order ID:	5033284d-85d6-441f-9a41-daa435f11692
Date and time of the order:	13/08/2018 10:45:21 GMT+01:00
Payment reference:	None
Total paid:	None
E-mail address for delivery:	radkamacgregor@yahoo.com

Country	Company name	Document	Document ID	Business Register	Expiration date	Status
Belgium	McDonald's Belgium	Publication of National…	934552	Kruispuntbank van…	19/08/2018	Download
Germany	McDonald's GmbH	Annual accounts (01/01…	UR19049155	Amtsgericht München	19/08/2018	Download

Source: Prepared by authors based on European e-Justice portal (Print Screen)

4.2 Annual accounts of McDonald´s provided via e-Justice Portal

The data about McDonald´s franchise SMEs was collected from 12 EU member states, i.e. no information at all about such SMEs from 16 EU member states was located.

Table 1. European e-Justice portal –access to annual accounts of McDonald´s SMEs

Country	Company information	Last annual accounts	e-Justice Delivery	Cost in EUR	Comments
Austria	Yes	???	Unavailable	1.10	Available otherw.
Belgium	Yes	2016	Immediate	Free	Perfect, in NL
Cyprus	Yes	No	No	No	Unavailable
Czech Republic	No				
Denmark	No				
Estonia	No				
Finland	Yes	???	Unavailable	5.00	Available otherw.
France	Yes	2016	Unavailable	8.80	Available otherw.
Germany	Yes	2015	Immediate	Free	Perfect, in GE
Italy	Yes	No	No	No	Unavailable
Latvia	No				
Luxembourg	No				
Malta	No				
Netherlands	Yes	2016	Unavailable	3.05	Available otherw.
Poland	No				
Slovakia	No				
Slovenia	No				
Spain	Yes	2015	Unavailable	9.59	Available otherw.
Sweden	Yes	No	No	No	Unavailable
United Kingdom	Yes	2016	Immediate	Free	Perfect, in EN

Source: Prepared by authors based on e-Justice Portal https://e-justice.europa.eu/

Although the data about McDonald´s franchise SMES was collected from 12 EU member states, the free access via e-Justice Portal to annual accounts exists only for 3 of them (Belgium, Germany, and the United Kingdom). Regarding the remaining 9 EU member states, the annual accounts are either not available or available from other platforms and for a fee between EUR 1.10 (Austria) and EUR 9.59 (Spain).

4.3 Annual accounts of Buger King via e-Justice Portal

The data about Burger King franchise SMEs was collected from 13 EU member states, i.e. no information at all about such SMEs from 15 EU member states was located.

Table 2. European e-Justice portal –access to annual accounts of Burger King SMEs

Country	Company information	Last annual Accounts	e-Justice Delivery	Cost in EUR	Comments
Austria	No				
Belgium	Yes	2016	Immediate	Free	Perfect
Cyprus	Yes	2016	Unavailable	Free	Available otherw.
Czech Republic	No				
Denmark	Yes	???	Immediate	Free	Perfect
Estonia	No				
Finland	No				
France	Yes	No	Unavailable	No	Unavailable

Germany	Yes	2017	Immediate	Free	Perfect
Italy	Yes	???	Unavailable	???	Available otherw.
Latvia	No				
Luxembourg	Yes	2017	Immediate	Free	Perfect
Malta	No				
Netherlands	Yes	No	Unavailable		Unavailable
Poland	Yes	No	Unavailable		Unavailable
Slovakia	Yes	2016	Delayed del.	Free	Delayed delivery
Slovenia	No				
Spain	Yes	No	No	No	Unavailable
Sweden	Yes	2016	Unavailable	SEK 40	Available otherw.
United Kingdom	Yes	2016	Immediate	Free	Perfect

Source: Prepared by authors based on e-Justice Portal https://e-justice.europa.eu/

Although the data about Burger King franchise SMEs was collected from 13 EU member states, the free access via e-Justice Portal to annual accounts exists only for 5 of them (Belgium, Denmark, Germany, Luxembourg and the United Kingdom). Regarding the remaining 8 EU member states, the annual accounts are not available, except for Slovakia and Sweden. The statement about "available otherwise" provided with respect to Cyprus and Italy looks more like a wish than reality, because thes other platforms were not located.

4.4 Annual accounts of KFC provided via e-Justice Portal

The data about KFC franchise SMEs was collected from 12 EU member states, i.e. no information at all about such SMEs from 16 EU member states was located.

Table 3. European e-Justice portal –access to annual accounts of KFC SMEs

Country	Company information	Last annual Accounts	e-Justice Delivery	Cost in EUR	Comments
Austria	No				
Belgium	No				
Cyprus	No				
Czech Republic	Yes	No			Unavailable
Denmark	Yes	???	Immediate	Free	Perfect
Estonia	Yes	2015	Unavailable	2	Available otherw.
Finland	No				
France	No				
Germany	Yes	2016	Unavailable	4.50	Available otherw.
Italy	No				
Latvia	No				
Luxembourg	Yes	2016	Immediate	Free	Perfect
Malta	Yes	2016	Unavailable	2-4	Available otherw.
Netherlands	Yes	2016	Unavailable	3.05	Available otherw.
Poland	No				
Slovakia	Yes	2012	Delayed	Free	
Slovenia	Yes	2017	Immediate	Free	Perfect
Spain	Yes	2014	Unavailable	10.19	Available otherw.
Sweden	Yes	No			Unavailable
United Kingdom	Yes	2017	Immediate	Free	Perfect

Source: Prepared by authors based on e-Justice Portal https://e-justice.europa.eu/

Although the data about KFC franchise SMEs was collected from 12 EU member states, the free access via e-Justice Portal to annual accounts exists only for 4 of them (Denmark, Luxembourg, Slovenia, and the United Kingdom). Regarding the remaining 8 EU member states, the annual accounts are either not available or available from other platforms and for a fee between EUR 2 (Estonia) to EUR 10.19 (Spain).

4.5 Annual accounts of Subway provided via e-Justice Portal

The data about Subway franchise SMEs were collected from 15 EU member states, i.e. no information at all about such SMEs from 13 EU member states was located.

Table 4. European e-Justice portal –access to annual accounts of Subway SMEs

Country	Company information	Last annual Accounts	e-Justice Delivery	Cost in EUR	Comments
Austria	No				
Belgium	Yes	2016	Immediate	Free	Perfect
Cyprus	Yes	No			Unavailable
Czech Republic	Yes	No			Unavailable
Denmark	Yes	???	Immediate	Free	Perfect
Estonia	No				
Finland	Yes	No	Unavailable	5.00	Available otherw.
France	Yes	???	Unavailable	8.80	Available otherw.
Germany	Yes	2016	Immediate	Free	Perfect
Italy	Yes	???	Unavailable	???	Available otherw.
Latvia	Yes	2014	Unavailable	1.00	Available otherw.
Luxembourg	Yes	2016	Immediate	Free	Perfect
Malta	No				
Netherlands	Yes	2012	Unavailable	3.05	Available otherw.
Poland	No				
Slovakia	Yes	No			Unavailable
Slovenia	No				
Spain	Yes	No			Unavailable
Sweden	Yes	No			Unavailable
United Kingdom	Yes	2017	Immediate	Free	Perfect

Source: Prepared by authors based on e-Justice Portal https://e-justice.europa.eu/

Although the data about Subway franchise SMEs was collected from 15 EU member states, the free access via e-Justice Portal to annual accounts exists only for 5 of them (Belgium, Denmark, Germany, Luxembourg and the United Kingdom). Regarding the remaining 10 EU member states, the annual accounts are either not available or available from other platforms and for a fee between EUR 1.00 (Latvia) and EUR 8.80 (France).

5. RESULTS AND DISCUSSION

Although the Europe 2020 strategy is the EU strategy for improving competitiveness (Radulescu etal., 2018) and this should be supported by an increase in the accessibility of business information, including annual accounts, the EU law does not dictate European SMEs to post their annual accounts on the e-Justice Portal and make them available for free (EC, 2010). The strategic and law framework of the EU are merely the foundation of the e-Justice Portal to which Business Registers from the EU member states, which collect data based on national laws, should migrate their data and make it available for a price not exceeding the administrative cost (MacGregor Pelikánová &

MacGregor, 2017). In practice, this data does not necessarily include annual accounts, i.e. currently it is left up to national laws and some of them demand it while others not. Nevertheless, the general drive under the auspices of the Europe 2020 across the EU is clear – annual accounts should be made available, prefereably digitally on e-Justice Portal and for a minimal, if any, fee (EC, 2010).

In order to holistically and empirically test the pro-EU hypothesis that these annual accounts are available in a similar manner and under similar conditions, namely via e-Justice Portal and for free or not excessive fee, SMEs operating as franchise beneficiaries of McDonald´s, BurgerKing, KFC and Subway have been researched with the goal to access their annual accounts and to indentify and compare the conditions for that.

These four franchises certainly exist in all EU member states and do include in their business names the appropriate brand name - McDonald´s, BurgerKing, KFC and Subway. However, the research revealed the data only from 20 EU member states. This raises the questions about the remaining 8 EU member states and might suggest that data on SMEs is not fully collected and migrated to e-Justice Portal from Bulgaria, Greece, Ireland, Croatia, Lithuania, Hungary, Portugal, and Romania. From these 8 jurisdictions there is no information at all, i.e. even not the plain incorporation data, is available. This might be caused by the setting of these national laws and/or Business Registers and suggests that the committment to a transparent, digital and free access to annual accounts is not fully shared by these EU member states and/or that EU regulative and strategic calls are contra-productive in national settings (Horváth et al., 2017).

Regarding the 20 EU member states from which are SMEs belonging to at least one of the four franchises, dramatic differences exist. These differences are not between each of these four franchises, instead they follow national patterns. Regarding all four franchises, German and British SMEs appear to duly submit their annual accounts to their Business Registers and then these Business Registers migrate this data without any further ado and without charging any fees to the e-Justice Portal. Such a perfect outcome was found also regarding at least one of the four franchises from Belgium, Denmark, Luxembourg, and Slovenia. Regarding the remaining 14 EU member states, it appears that annual accounts are either available from other (probably national) platforms for free (Czech Republic) or for a fee ranging from EUR 1 (Latvia) to EUR 9 (France) or even EUR 10 (Spain) or are not available at all (Cyprus).

Firstly, this indicates that the availability of the data on companies, and especially their annual accounts, is dramatically different across the EU and that the e-Jusitce Portal magnifies these differences and so the pro-EU hypothesis needs to be rejected.

Secondly, the obtained results are in line with some general statements about EU member states, i.e. certain clichés are confirmed – such as about the poor performing, not transparent and heavily adminstrativee charging PIGS countries (Portugal, Italy, Greece, Spain) or about the disciplined and hardworking Germany, Benelux and Scandinavian countries or about the „more talking than acting" France (MacGregor Pelikánová, 2014). It is rather sad that basically the best results were obtained about SMEs from the United Kingdom, which is about to leave the EU.

Thirdly, the data suggests that the differences in the availability of annual accounts and in the related conditions do not reflect the economic power or the EU seniority. The opinon about allegedly significant disparities between the "old" and "new" EU member states (Fura et al., 2017) has been challenged for a few years, namely the academic literature seems to reject the old criticism about the good and compliant old EU member states and the poorly performing newcomers (Balcerzak, 2015) and has brought data showing that the average performance of headline indicators of Europe 2020 for the EU-15 and EU-13 countries seems to be similar and exhibits the same trend of changes (Szymanska & Zalewska, 2018). This pioneering study emphasizes this new perception trend. It is worthy to mention that Belgium or even the Czech Republic provides annual accounts of their SMEs much more smoothly and without any charge than the constantly held up as a role model France with its charge of EUR 8.80 and the need to go to some national sites. Indeed, Central and Eastern-European countries are doing in this respect much better than the already critically mentioned Southern (PIGS) countries.

Fourthly, it is tempting to propose for further reasearch the already mentioned indications and suggestions along with the audacious hypothesis that the free e-availability of annual accounts testify about the „nationally particular" business transparency, honesty, effectiveness and efficiency in the EU. To put it differently, certain EU member states and their SMEs provide freely data on annual accounts while others do it more reluctantly and for a fee and even some do not provide annual accounts and, in extreme cases, perhaps not corporate information at all. If this is true, then we are facing a serious potentail for an information asymmetry and for a competitive disadvantage for compliant SMEs and their EU member states and a competitive advantage for non-compliant SMEs and their EU member states. If this is true, then the reality is that Europe 2020 can be contra-productive in this respect. This preliminary suggestion is worrysome and adds to the fear generated by other assessed indicators pointing out that EU member states show merely an average progress in realisation of Europe's developement program, that the Europe 2020 goals may not be achieved in the prescribed time (Stec & Grzebyk, 2017) and that the EU expectations to be the global leader in 2020 (EC, 2010) is even not a dream, but a mere chimera.

6. CONCLUSIONS

The e-Justice Portal has been operating for over one year and has proven to be a valuable and highly practical tool for getting information about European Businesses. This information entails both summary corporate data, such as the business name and seat, and documents, such as Articles of Association, ByLaws and annual accounts. The pioneering pilot case study used the set of comparable four franchises - McDonald´s, BurgerKing, KFC and Subway – and attempted to get from the e-Justice Portal their annual accounts from EU member states and to study the conditions for that. This holistic exploration is able to reveal the reality about their e-reporting, i.e. how this segment of SMEs from the entire EU, operating based on the same model and active in the same industry, proceed with respect to the e-reporting. So far, no similar research has been reported and discussed in the academic press. Interestingly, no differences between these franchises have emerged and so the homogenous nature of the sample was confirmed. Even more interesingly, differences have emerged in a consistent manner based on the jurisdiction – plainly e-Justice Platform is a great resource to obtain immediately and for free annual accounts of SMEs from Germany, the United Kingdom and perhaps as well Belgium, Denmark, Luxembourg and Slovenia, but not regarding SMEs from France or Spain and absolutely not at all regarding SMEs from Portugal, Greece, etc.

The pro-EU hypothesis implied by Europe 2020 that annual accounts of businesses, including SMEs, are available in a similar manner and under similar conditions from the entire EU is to be rejected. The partial scepticism suggested by academic litereature was confirmed by this pilot case. The reality about e-reporting has many shades depending upon the jurisdiction and the question is not what business, but instead from where. EU member states and nations are more different in their commitment regarding e-reporting and perhaps in other aspects than the Europe 2020 believes. Even more sadly, since the free, transparent, centralized and digital providing of annual accounts is an idea addressing the demands of the 21st century global economy challenges, the most compliant EU member state is the leaving United Kingdom.

Certainly more research is needed and the pioneering case study about the four franchises systems which examined the data about one hundred SMEs needs to be expanded and deepened. The so far yielded results which are more indicative than conclusive have to be made more empirically robust by more testing and analysing. Such an endeavour is highly desireable and instrumental, because so far it seems that SMEs from certain jurisdictions are freely "putting their cards on the table", while SMEs from other jurisdictions do it in a more complex manner and charge fees for that and even SMEs from some jurisdictions do not do it all. If this is the case, then we have not only a plain conceptual discrepancy missed by the Europe 2020, but as well a significant information asymmetry with a potential to lead to a competitive (dis)advantage and

ultimately to a potential for unfair commercial practices and unfair competition as such. If this is the case, then it is extremely serious and puts at risk compliant, honest and full reporting SMEs, i.e. the operation of Europe 2020 would totally contradict its stated priorities.

BIBLIOGRAPHY

Areeda, Ph.E. (1996). The Socratic Method. *Harvard Law Review*, 109(5): 911-922.

Azolai, L. (2011). The Force and Forms of European Legal Integration, *EUI Working Papers*, 2011/6. Retrieved July 1, 2017 from http://cadmus.eui.eu/bitstream/handle/1814/16894/LAW_2011_06.pdf?sequence=1

Balcerzak, A.P. (2016a). Technological Potential of European Economy. Proposition of Measurement with Application of Multiple Criteria Decision Analysis. *Montenegrin Journal of Economics*, 12(3): 7-17. Doi: 10.14254/1800-5845.2016/12-3/1.

Balcerzak, A.P. (2016b). Fiscal Burden in the European Union Member States. *Economic Annals – XXI*, 161(9-10):4-6. Doi: 10.21003/ea.V161-01.

Balcerzak, A.P. (2015). Europe 2020 Strategy and Structural Diversity Between Old and New Memember States. Application of Zero Unitarization Method for Dynamic Analysis in the Years 2004-2013. *Economics & Sociology*, 8(2):190–210.

Chritia, A. D. (2014). A legal-historical review of the EU competition rules. *International and comparative law quarterly*, 63 (2): 281–316. Doi: 10.1017/S0020589314000037.

Cvik, E. D. & MacGregor Pelikánová, R. (2016). Implementation of directive 2014/17/EU and its impact on EU and member states markets, from not only a Czech perspectives. *Procedia Social and Behavioral Sciences*, 220, 85–94. Doi: 10.1016/j.sbspro.2016.05.472.

Çolak, M.S. & Ege, A. (2013). An Assessment of EU 2020 Strategy: Too Far to Reach? *Social Indicators Research*, 110(2): 659–680. Doi: 10.1007/s11205-011-9950-2.

Damro, C. (2012). Market power Europe. *Journal of European Public Policy*, 19(5): 682–699.

Erixon, F. (2010). The Europe 2020 strategy: time for Europe to think again. *European View*, 9, 29. Doi 10.1007/s12290-010-0120-8.

European Commission (2018). *Growth – Internal Market, Industry, Entreprenurship and SMEs – What is SMEs?* Retrieved August 8, 2018 from http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en

European Commission (2010). *COM (2010) 2020 Communication from the Commission Europe 2020 – A strategy for smart, sustainable and inclusive growth.* Retrieved August 8, 2018 from http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf

Fura, B., Wojnar, J. & Kasprzyk, B. (2017).Ranking and classification of EU countries regarding their levels of implementation of the Europe 2020 strategy. Journal of Cleaner Production, 165, 968-979. Doi: 10.1016/j.jclepro.2017.07.088

Horváth, P., Puter, J. M., Dagiliene, L., Dimante, D., Haldma, T. et al. (2017). Status quo and future development of sustainability reporting in Central and Eastern Europe. *Journal of East European management studies*, 22(2): 221–243.

Jindřichovská, I. & Kubíčková, D. (2017) The Role and Current Status of IFRS in the Completion of National Accounting Rules – Evidence from the Czech Republic *Accounting in Europe*, 14(1–2): 56–66. Doi: 10.1080/17449480.2017.1301671, http://www.tandfonline.com/eprint/Vup6gfuVWyKHyFDwuvth/full

Jindřichovská, I. & Kubíčková, D. (2016). The management accounting evolution in conditions of the Czech Republic In: Jindřichovská, I.; Kubíčková, D. Conference: 4th International Scientific Conference on IFRS - Global Rules and Local Use Location: Anglo Amer Univ, Prague, CZECH REPUBLIC Date: SEP 30, 2016, p. 90–95.

Lajtkepova, E. (2016). Differences and Similarities in the Indebtedness of EU Member States after Last Financial Crisis. *Oeconomia Copernicana,* 7(4): 551–563.

MacGregor Pelikánová, R. (2017). European Myriad of Approaches to Parasitic Commercial Practices. *Oeconomia Copernicana*, 8(2): 167–180. Doi: 10.24136/oc.v8i2.11.

MacGregor Pelikánová, R. (2014). *Selected current aspects and issues of European integration*. Ostrava, CZ: Key Publishing.

MacGregor Pelikánová, R. (2012). And the best top level domain for European enterprises is ... *International And Comparative Law Review,* 12(2): 41–57.

MacGregor Pelikánová, R. & MacGregor, R. (2017). European e-Justice Portal – Reality of Electronic One-Stop-Shop for Publication of Financial Statements in the EU. In: Jindřichovská, Irena; Kubíčková, Dana. Conference: *5th International Scientific Conference on IFRS – Global Rules and Local Use* Location: Anglo Amer Univ, Prague, CZECH REPUBLIC Date: OCT 20, 2017. IFRS: GLOBAL RULES & LOCAL USE, Pages: 98–111.

MacGregor Pelikánová, R. & MacGregor, R. (2016). Current Acadmic and Managerial Views on the Valuation of Internet Domain Names In: Loster, T.; Pavelka, T. Conference: 10th International Days pf Statistics and Economics Location: , Prague, Czech Republic Date: SEP 8–10, 2016, p. 1119–1129.

MacGregor Pelikánová, R. & MacGregor, R. (2015). Global and Local Perspectives on Valuation of Domain Names In: Jindřichovská, I.; Kubíčková, D. Conference: 3rd International Scientific Conference on IFRS – Global Rules and Local Use Location: Anglo Amer Univ, Prague, Czech Republic Date: OCT 8–9, 2015, p. 123–132.

Melecký, L. (2018). The main achievements of the EU structural funds 2007–2013 in the EU member states: efficiency analysis of transport sector. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 13(2): 285–306. Doi: 10.24136/eq.2018.015

Pakšiová, R. & Lovciová, K. (2018). European Integration and Reporting Requirements of Companies in the Slovak Republic. In International Conference on European Integration 2018. International Conference. *International Conference on European Integration 2018 : Proceedings of the 4th International Conference on European Integration 2018 : May 17–18, 2018 Ostrava, Czech Republic* [elektronický zdroj]. Ostrava: VŠB – Technical University of Ostrava, 2018, p. 940–947 online.

Pasimeni, F. & Pasimeni, P. (2016). An Institutional Analysis of the Europe 2020 Strategy. *Social Indicator Research,* 127(3): 1021–1038. Doi: 10.1007/s11205-015-1013-7.

Petera, P., Wagner, J. & Pakšiová, R. (2017). Empirical study of approach to sustainability management and reporting in the Czech and Slovak Republic. In Annual conference on finance and accounting. *New trends in finance and accounting : proceedings of the 17th annual conference on finance and accounting [ACFA 2016] : [may 27, 2016, University of Economics, Prague, Czech Republic]*. Cham : Springer, 2017. ISBN 978-3-319-49559-0, p. 547-558

Piekarczyk, A. (2016). Contemporary organization and a perspective on integration and development. *Oeconomia Copernicana,* 7(3): 467-483. Doi: 10.12775/OeC.2016.027.

Pohulak-Żoledowska, E. (2016). Innovation in Contemporary Economies. *Oeconomia Copernicana*, 7(3), 451–466. DOI: http://dx.doi.org/10.12775/OeC.2016.026.

Radulescu, M., Fedajev, A., Sinisi, C.I., Popescu, C., Iacob, S.E. (2018). Europe 2020 Implementation as Driver of Economic Performance and Competitiveness. Panel Analysis of CEE Countries. *Sustainability,* 10(2): 566. Doi: 10.3390/su10020566

Sileverman, D. (2013). *Doing Qualitative Research – A Practical Handbook*. 4th Edition, London, UK: SAGE.

Staníčková, M. (2017). Can the implementation of the Europe 2020 Strategy goals be efficient? The challenge for achieving social equality in the European Union. *Equilibrium. Quarterly Journal of Economics and Economic Policy*, 12(3): 383–398. Doi:10.24136/eq.v12i3.20

Stec, M. & Grzebyk, M. (2017). The implementation of the Strategy Europe 2020 objectives in European Union countries: the concept analysis and statistical evaluation. *Quality & Quantity*, 52(1): 119–133. Doi: 10.1007/s11135-016-0454-7

Szymanska, A. & Zalewska, E. (2018). Towards the Goals of the Europe 2020 Strategy: Convergence or Divergence of the European Union Countries? *Comparative Economic Research-Central and Eastern Europe,* 21(1): 67–82. Doi: 10.2478/cer-2018-0004

Ugurlu, E. & Jindřichovská, I. (2017). Profitability and Working Capital Management of Czech SMEs:Empirical Evidence in the Period of Financial Crisis. In: Jindřichovská, Irena; Kubíčková, Dana. Conference: *5th International Scientific Conference on IFRS - Global Rules and Local Use* Location: Anglo Amer Univ, Prague, CZECH REPUBLIC Date: OCT 20, 2017. IFRS: GLOBAL RULES & LOCAL USE, Pages: 61–71.

Vivant, M. (2016). Building a common culture IP? *International revue of intellectual property and competition law*, 47(3). doi: 10.1007/s40319-016-0472-y.

Večeřa, M. (2012).The Process of Europenization of law in the context of Czech law. *Acta universitatis siagriculturae et silviculturae Mendelianae Brunensis*, LX, 60 (2): 459–464.

Quantitative Economics and Management

ESTIMATING GRAVITY MODEL FOR THE CZECH REPUBLIC: EMPIRICAL STUDY OF IMPACT OF IFRS ON THE CZECH INTERNATIONAL TRADE

Erginbay UGURLU
Istanbul Aydın University, Turkey
erginbay@gmail.com

Irena JINDŘICHOVSKÁ
Anglo-American University, Prague, Czech Republic
irena.jindrichovska@aauni.edu

Abstract
According to the gravity model, countries are trade relieson their proximity and relies on the size of their GDP. Negative influence is played by trade barriers and positive by common traditions and common political background. Big countries trade a lot between each other, e.g. the USA and Canada on the same continent or the USA and Germany in different continents. Smaller countries, like the Czech Republic, do not have such an impact on the scale of world trade. The size of exports/imports is influenced by the fact whether or not they are part of some trading bloc, e.g., the EU in Europe or NAFTA in America. Accounting rules, namely IFRS, are expected to be perceived as a positive influence on the world trade of a particular country and on a country´s FDI (Foreign Direct Investment).In this paper, we test the influence on foreign trade and FDI of using the gravity model within the EU. The influence of IFRS is also tested, although we might expect that its influence will be smaller than that of other factors. Contrary to our expectations, we have found that the influence of IFRS is not insignificant and is more pronounced after the year 2010 which coincides with the change of local regulations. This finding establishes an interesting signal relating to perceiving the increasing quality of the Czech economic environment including accounting regulations.

Keywords: *Gravity model, export, EU, international trade, IFRS*

1. INTRODUCTION AND MOTIVATION

International trade is an essential factor for the economic development of countries. The Czech Republic is one of the transitional economies in Europe. The Czech Republic's economy expanded by 4.3% in 2017, its second fastest rate in a decade (EC, 2018). Exports are the main driver of the economy. There are many theories of international trade, such as the comparative advantage theory, and the absolute cost theory. In economics literature, the gravity model is used to investigate international trade between countries.

The gravity model in economics comes from Newton's "Law of Universal Gravitation" which was proposed in 1687. It states that every two particles in the universe attract each other. The formulation of the law as follows for two objects i and j.

$$F_{ij} = G\frac{M_i M_j}{D_{ij}^2} \quad (1)$$

where; $F_{ij}$is the attractive force, $M_i$and M_j are the masses and D_{ij} is the distance between the two objects, G is a gravitational constant depending on the unit of measurement for mass and force.

Although it is based on physics, it has long been one of the most successful empirical models in economics (Anderson, 1979 and 2011). The Gravity equation to model the size of bilateral trade flows between any two countries was firstly presented, in 1962, by Jan Tinbergen (Muratoglu, Ugurlu and Muratoglu, 2017).The gravity model equation in economics is formalized as follows (Roy and Rayhan, 2012).

$$\mathrm{Trade_{ij}} = \alpha \frac{\mathrm{GDP_i GDP_j}}{\mathrm{Distance_{ij}}} \quad (2)$$

where$\mathrm{Trade_{ij}}$ is the value of the bilateral trade between country i and j, and$\mathrm{GDP_i}$ and $\mathrm{GDP_j}$ are country i and j's national incomes, respectively. $\mathrm{Distance_{ij}}$is a measure of the bilateral distance between the two countries.After logarithms of the equation are taken, we have Equation 3 which is below:

$$\log(\mathrm{Trade_{ij}}) = \alpha + \beta_1 \log(\mathrm{GDP_i x GDP_j}) + \beta_2 \log(\mathrm{Distance_{ij}}) + u_{ij} \quad (3)$$

Gravity model – generally

According to some literature, the gravity model in economics was not very heavily used and it was somewhat disconnected from to the family of economic theory. However gravity has long been one of the most successful empirical models in economics (Anderson, 1979 and 2011). Incorporating the theoretical foundations of gravity into recent practice has led to a richer and more accurate estimation and interpretation of the spatial relations of international trade described by gravity. Recent developments are reviewedhere with suggestions for promising future research both at the macro level and on the level of individual industries. In this paper, we apply the gravity model to the special conditions of the Czech Republic – a small open economy that was transformed from a planned economy to a market system at the beginning of the 1990s. In particular, apart from relying only on data linked to international trade (bilateral imports and exports within the EU) we are also interested in the impact of a particular institutional feature – the introduction of IFRS into Czech accounting and we are searching to see whether we will find any evidence as to the importance of this variable.

IFRS – generally

IFRS was introduced as a compulsory feature of accounting, in Europe, in 2005. The major purpose was to enable the use of information for financial markets and investors even though other positive aspects have been perceived by external and internal users of IFRS regulations. In 2010, there was an institutional change in Czech regulations as the Ministry of Finance allowed and encouraged the use of IFRS by Czech companies. IFRS could be used as a base for accounting purposes but, for tax purposes, the results still had to be accounted for according to Czech Accounting Standards (CAS) rules.

In the Czech Republic there is an obligation to prepare accounting according to Czech standards for the purpose of calculating the tax base. But there was a change in regulations in 2010, when IFRS was allowed to be used within Czech companies that were part of bigger international groupings. These subsidiaries were allowed to use IFRS as the primary standards rules, but subsidiaries, which are part of international companies, can use IFRS as their primary accounting standards and translate the relevant parts to CAS for tax purposes (Jindrichovska, Kubickova, 2017; Andre, 2017). This instructional change was described in many academic works, e.g. Jindrichovska and Kubickova, 2016 and 2017; Prochazka, 2017 and others.

The Czech Republic is a European Union member country. The EU makes the criteria include free trade regulations among member countries, because some of them are less developed-especially transitional countries- than other EU member countries (Ugurlu, 2009). Here we are testing the gravity model and, on the top of that, we will add the IFRS indicator to see whether this institutional change had any importance for Czech imports and exports as expected in the accounting literature. We test the volume and structure of international trade prior to 2010 and after 2010.

The structure of paper is as follows: Section 1 provides an introduction and motivation, Section 2 characterizes previous literature on the gravity model, generally, and studies of the gravity model in the Czech Republic, in particular. It also characterises relevant IFRS studies in the Czech Republic. Section 3 concentrates on methodology and describes the model. Section 4 characterizes relevant data and provides descriptive statistics. Section 5 summarizes the results and suggests avenues for further research

2. LITERATURE REVIEW

Studies on the application of the gravity model

Many scholars have investigated the issues of various features of international trade using the gravity model, in particular, in different economies within particular economic blocs

A study by Paas and Tafenau (2005) uses the gravity equation to determine whether it describes trade integration of the EU-25 countries and whether there is any difference for the Baltic Sea Region (BSR). The results suggest that the BSR represents an exception within the EU, as the new trade theories cannot be used to explain BSR trade to the same extent as for the whole EU. Comparative advantages are the main basis for intensive trade relations within the BSR.

Sichei, Erero, and Gebreselasie (2008) employ an augmented gravity model to South Africa's exports of motor vehicles, parts and accessories to 71 countries during 1994–2004. The aim of the paper is to determine which countries South Africa has, and has not, reached with its export potential and to determine whether there are any barriers to exploiting the export markets. Some of the variables related to the trading partners that increase South Africa's exports are GDP, government effectiveness, the English language, the use of left-hand drive vehicles, and EU, Africa, NAFTA, etc. membership. The results show that there are several countries where South Africa could export but certain barriers exist, such as geographical distance, high import tariffs, and the lack of trade agreements.

Ravishankarand and Stack (2013) employ a stochastic frontier specification of the gravity model to determine trade efficiency against the maximum potential level, using bilateral export data between 17 Western European countries and 10 new member states during 1994 and 2007. The findings reveal a high degree of East-West trade integration, the new member states obtaining two-thirds of frontier estimates, while high efficiency scores suggest a low degree of trade resistances.

Nishitateno (2014) used the gravity model analysis and augmenting it to extend the scope of the research is prevalent in numerous studies in various different fields. In his study he used the gravity model to determine the network effects on auto parts exports from six major automobile producing countries. The findings suggest that overseas production by subsidiary plants increases exports from the home country, except for Japan, where it is a less important determinant. This could be due to Japanese auto parts suppliers aiming to meet the needs of Japanese automakers, which weakens the network effects on exports from Japan.

Akhvlediani and Śledziewska (2016) analysed the impacts of Common Commercial Policy (CCP) on the export performances of the Visegrad Four (V4) group of countries with the use of the augmented gravity model by employing the Poisson pseudo-maximum-likelihood (PPML) estimator. The authors found that CCP and EU enlargement had clearly positive impacts on the V4's export performances. Furthermore, the authors state that, besides the officially signed agreements, there are the apparent positive impacts from trade with natural partners. Namely, trade with the Post-Soviet countries remains very considerable even after EU accession.

The studies from the Czech Republic,

Medvedev and Zemplineova (2005) concentrated on the Czech manufacturing industry and investigated the impact of domestic and import competition on performance in manufacturing in period 1998–2002. The study was performed with the use of panel data, and the authors found a strong increasing non-linear (diminishing) relationship between the performance of Czech manufacturing and domestic competition, measured by the Herfindahl-Hirschman Index. The study confirmed that import competition measured by an import penetration ratio is negatively related to the performance of Czech industries, while foreign direct investments are positively correlated with performance.

Hanousek, Kočenda, and Maurel (2011) analysed the direct and indirect effects as well as the externalities of FDI in emerging European markets based on a literature survey. The authors found that there are weakening effects of FDI over time. This is imputable to a publication bias and to the fact that more sophisticated methods and more controls can only be used once a sufficient period of time has passed. The authors assumed that panel studies are likely to find relatively lower spillover

effects. More specific to the sampled studies is the role played by forward and backward spillovers, which dominate other channels in driving FDI externalities.

Babunek (2012) compared the inflow of foreign direct investment per capita in the V4 countries and their most important trading partners. It was found that there are statistically significant differences between the V4 countries; however, it was revealed that that there are no statistically significant differences between the countries after the inclusion of Germany and Austria, which are the geographically closest countries to the V4 countries. After the inclusion of all trading partners who have ties to more countries, with the V4 it is already evident that there are significant differences between countries. Variances are statistically significant in the inflow of investment to all countries. In the work it is shown that a country of the V4 and its nearest trading partners are a compact unit in the inflow of foreign direct investments

Simakova (2014) analysed the impact of exchange rate volatility on trade flows between the Czech Republic and its 17 trading partners, using data from 1997–2012. The researcher uses an extended gravity model equation, with additional factors, such as spot exchange rate and its volatility. The findings reveal a weak negative effect of exchange rate volatility on bilateral trade of the country with its main partners. Thus, any policy aimed at exchange rate development cannot significantly improve Czech international trade.

Wlazel (2014) incorporates indirect trade effects into the gravity model for the Czech Republic, using data for 56 countries during 1995–2009. The results of the research are ambiguous, proving that the gravity model does not perform better when adjusted only for domestically produced exports. The findings also confirm that the demand for German exports is the main driver for Czech exports.

A study by Paulus and Michalíková (2014) analysed trade between the Czech Republic and its 177 trade partners during 1995–2011. It confirmed that Czech exports are directed towards European countries, with the economic factors of domestic and foreign GDP key drivers. A controversial finding was that higher level of corruption in a partner country should increase mutual trade. This is attributed to the presence of corruption matching.

The gravity model has also been used by several researchers adjusting it to analyse different phenomena in the Czech Republic. Jandová and Paleta (2015) analysed the link between size, distance, and economic variables and internal migration flows within the Czech Republic. The researchers employed several versions of an extended gravity model, using wage, unemployment, and job vacancies as repressors and the internal migration flow as the dependent variable. The variables were used in different forms (values, differences, and rates) to determine what kind of data people consider. The results of the models reveal that rates have a higher explanatory value compared to differences and values, i.e. people tend to consider the ratios of the variables more. Wage and job vacancies are the most significant factors, unemployment rates having a small impact on migration flows.

Another Czech industry specific study, by Blazkova and Chmelikova (2015), deals with the food and beverages industry in the Czech Republic. Their paper deals with market concentration and the development, and impact of import competition in the Czech food and beverages industry in 2003–2013. The results indicated that market concentration grew in the Czech food and beverages industry in 2003–2013 and that import competition strengthened. However, there are differences among specific sectors in this Czech industry.

Relevant IFRS Studies – a very broad literature has been written on the impact of IFRS in the increase of international trade worldwide.

Daske et al. (2008) researched mandatory IFRS reporting around the world to observe early evidence on the economic consequences. Their findings suggest an increase in market liquidity around the time of IFRS adoption and a decrease in firms' cost of capital and an increase in equity valuations. Countries with strong legal enforcement and incentives for firms to be transparent are the only ones where capital-market benefits occur. Another interesting finding was that capital market effects are most evident in companies that have voluntarily adopted IFRS.

Specifically concerning the Czech Republic, authors Jindrichovska, Kubickova, and Kocmanova, 2014; Jindrichovska and Kubickova 2016 and 2017 characterized the development of rules and practices of accounting and the application of IFRS in the Czech Republic. The authors investigated the relationships between local and global standards of accounting, the impact on the legal and institutional environment and, as well, the perceived benefits of adopting IFRS in accounting practices in the country on the level of individual companies.

The authors show that, in recent years, one can observe some activity in the transformation of IFRS in the field of accounting; however, this is not systematic or homogenous, as the application of local rules is still required in the domain of taxation. The analysis of the development of accounting regulations in the Czech Republic implies that the majority of Czech companies, in 2014, had little motivation to switch to international reporting standards; especially, if there is no further reason for doing so, as a government requirement, the presence of the subject on capital markets, or a strong business partner – e.g. a parent company from abroad that the Czech entity reports to using an international accounting format.

Procházka (2017) has written a study on forced IFRS adoption by companies of the “EU-15 Parents-CEE subsidiaries” coming from the standpoint that there are very limited benefits of IFRS adoption in the Czech Republic. The same author has also assessed the profitability of subsidiaries in the global economy (Prochazka, 2018).

3. METHODOLOGY

In this research, we investigate the relationships between the foreign trade of the Czech Republic and its trade partner countries which are members of the European Union. We use two foreign trade variables which are independent variables of two different models. These variables are exports from the Czech Republic to an EU member country and imports from an EU member country to the Czech Republic as the foreign trade variables. The independent variables are the Gross Domestic Product (GDP) of the Czech Republic, the GDP of partner countries, the population of the Czech Republic, the population of partner countries, a dummy variable for Visegrad countries among partners, a dummy variable denoting dummies for a common land border and a dummy variable for an IFRS application of the Czech Republic. Their sources and names are presented in Table 1. The dataset covers 27 of the EU member trading partners of the Czech Republic (see the Appendix) within the period 2008–2017.

Table 1. List of explanatory variables

Abbreviation	Definition	Source
EXP	Exports from the Czech Republic (i) to partner country (j)	Czech Statistical Office
IMP	Imports from partner country (j) to the Czech Republic(i)	Czech Statistical Office
GDP_H	Host (the Czech Republic) Country Gross Domestic Product (Purchaser’s prices, constant 2010 US$)	World Bank, WDI
GDP_P	Partner Country Gross Domestic Product (Purchaser’s prices, constant 2010 US$)	World Bank, WDI
POP_H	Host Country Population	World Bank, WDI
POP_P	Partner Country Population	World Bank, WDI
DIST	Distance Between Countries (km)	CEPII
BORD[a]	Border Dummy: 1 if the country has a border with the Czech Republic and 0 for others	Authors’ Calculation
VIS[b]	Visegrad (V4) Dummy: 1 for Visegrad countries and 0 for others	Authors’ Calculation
IFRS	IFRS Dummy: 1 if the year is 2010 and after and 0 for others	Authors’ Calculation
Notes: a: Austria, Germany, Poland, and the Slovak Republic. b: Hungary, Poland, Slovak Republic		

We use all variables in a logarithmic form that is shown by the capital letter "L". The equations are as follows:

$$LEXP_{ijt} = \alpha_0 + \alpha_1 LGDP_H_{it} + \alpha LGDP_P_{jt} + \alpha_3 LPOP_H_{it} + \alpha_4 LPOP_P_{jt} + \alpha_5 LDIST_{ijt} + \alpha_6 BORD_{ijt} + \alpha_7 VIS_{jt} + \alpha_8 IFRS_{it} + \varepsilon_{itj} \quad (4)$$

$$LIMP_{ijt} = \beta_0 + \beta_1 LGDP_H_{it} + \beta_2 LGDP_P_{jt} + \beta_3 LPOP_H_{it} + \beta_4 LPOP_P_{jt} + \beta_5 LDIST_{ijt} + \beta_6 BORD_{ijt} + \beta_7 VIS_{jt} + \beta_8 IFRS_{it} + \varepsilon_{itj} \quad (5)$$

Figure 1. Graph of Distance

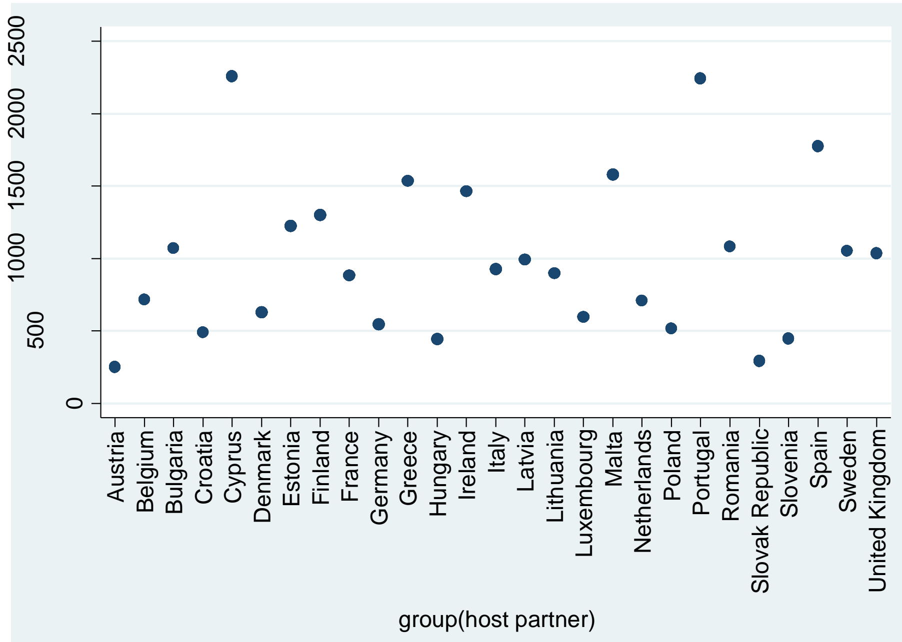


Figure 1 shows the distance between the Czech Republic and the trade partner countries among the EU members. Austria is the nearest trade partner of the Czech Republic, while Cyprus is the most distant trade partner country of the Czech Republic.

To understand the magnitude of imports and exports between two countries we created Figure 2 and Figure 3, respectively.

Figure 2. Scatter plot of Logarithm of Imports by Countries

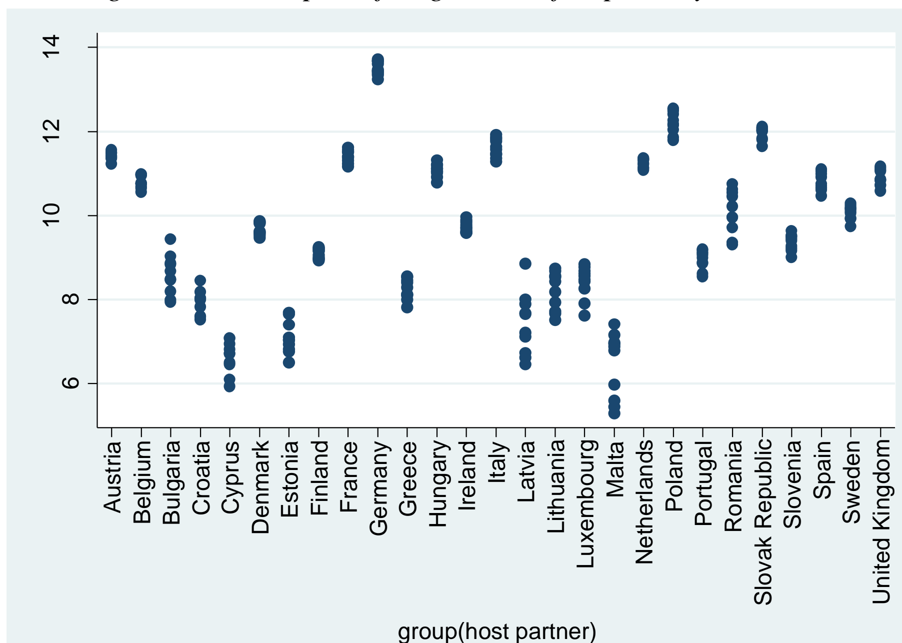
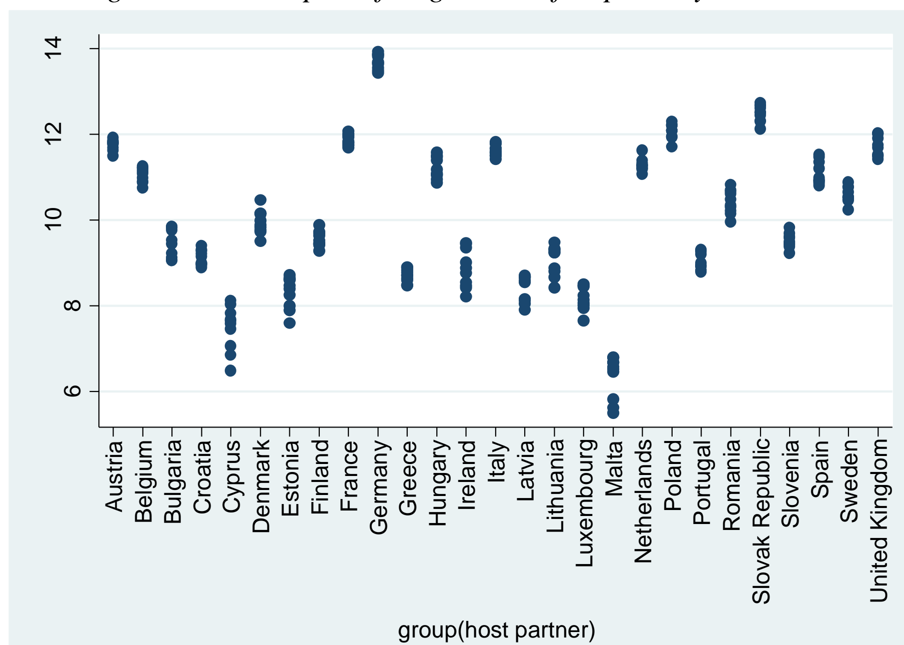


Figure 3. Scatter plot of Logarithm of Exports by Countries



As we see from the formula of the gravity model, if the countries havea close distance, they trade more. However, if the countries are far from each other,foreign trade between those isexpected to be lower than between neighboring countries, because transport costs between those are higher. Therefore, we expect that the distance variable has a negative coefficient. Our expectation of the coefficient of the population variable is not precise. As stated in Paulus and Michalíková (2014), the influence of the population is not so straightforward because, on the one hand, large markets can stimulate imports and, on the other hand, such markets can be more self-sufficient. Thus, the coefficient can be both positive or negative.

Moreover; because of the logic of the gravity model and also because of its being an important determinant of the relationship between countries, the common border variable is expected to have a positive effect on trade. We expect, therefore, that the coefficient of GDP variable for both the host and partner country is positive.

As member states of the European Union, the countries are subject to the IAS Regulation adopted by the European Union, in 2002. The IFRS Regulation applies to the consolidated financial statements of European companies traded in regulated markets starting in 2005.
Exceptions are:

- Bulgaria – joined the EU in 2007, but IFRS standards were required for banks as a result of the Law on Banking 1997 and were required for publicly traded companies under a law passed, in 2001, with effect in 2003.
- Malta – joined the EU in 2004, but IFRS standards (then known as IAS standards) were adopted in 1995 for all companies.

In the CzechRepublic, there is an obligation to prepare accounts according to Czech standards for the purpose of calculating the tax base. However, there was a change in regulations in 2010, when IFRS was allowed to be used in Czech companies that were part of bigger international groupings.

These subsidiaries were allowed to use IFRS as the primary standard, but subsidiaries, which are part of international companies, can use IFRS as their primary accounting standard and translate the relevant parts to CAS for tax purposes (Mejzlik and Zarova, 2009; Jindrichovska, Kubickova, 2017; André, 2017).

4. DATA AND EMPIRICAL APPLICATION

The variables are defined in Section 3. Also, stated is the logarithm of the variables used in the model. Table 2 shows the descriptive statistics of the variables; the correlation coefficient of the variables can be seen in the Appendix.

Table 2. Descriptive Statistics of the Variables

Variable	Mean	Std. Dev.	Min	Max
GDP_H	$2.16\text{x}10^{11}$	$1.16\text{ x}10^{10}$	2.03E+11	$2.41\text{ x}10^{11}$
GDP_P	$6.41\text{ x}10^{11}$	$9.53\text{ x}10^{11}$	$8.44\text{ x}10^{7}$	$3.87\text{ x}10^{12}$
POP_H	1.05E+07	57264.68	$1.04\text{ x}10^{7}$	$1.06\text{ x}10^{7}$
POP_P	1.84E+07	$2.33\text{ x}10^{7}$	409379	$8.27\text{ x}10^{7}$
IMPORT	67841.61	142743.4	199	904175
EXPORT	86871.56	175348	246	1118862
DIST	999.5185	531.5468	252.4479	2260.553
LGDP_H	26.09936	0.052359	26.03581	26.20915
LGDP_P	26.0766	1.602226	22.85648	28.98318
LPOP_P	15.87197	1.419201	12.9224	18.23067
LPOP_H	16.16738	0.00546	16.15583	16.17554
LIMP	9.734823	1.828965	5.293305	13.71478
LEXP	10.11053	1.707529	5.505332	13.92782
LDIST	6.76028	0.561094	5.531205	7.723365

The economic model uses the twenty-seven EU member trading partners of the Czech Republic, from 2008 to 2017, as was stated above. The data is in a panel data formation. We present in Table 3 and Table 4 the estimated coefficients for the gravity equations. Table 3 shows the Ordinary Least Squares (OLS), robust OLS, Random Effect Model[1] (REM) and robust REM results for the import model. Using a logarithmic form of variables is one of the ways to deal with heteroscedasticity. To avoid autocorrelation, and also heteroscedasticity, we use robust estimations. Table 4 shows the same models for the export model. Furthermore, in the logarithmic model, the coefficients in the logarithm can be interpreted as elasticities (Gujarati, 2004, p. 176).

[1] We do not use the Fixed Effect Model (FEM) because some dummy variables must be omitted when the FEM is estimated. For this reason, it is not appropriate to use the Haussmann test and compare FEM and REM results.

Table 3. Estimation Results for Imports

Dependent Variable: LIMP				
Variables	**OLS**	**OLS Robust**	**REM**	**REM Robust**
LGDP_H	0.9239 (0.353)	0.92389** (0.042)	0.781383 (0.106)	0.781383* (0.079)
LGDP_P	0.7560*** (0.000)	0.7560*** (0.000)	0.926054*** (0.000)	0.926054*** (0.000)
LPOP_H	18.4202 (0.209)	18.42025*** (0.009)	18.70434*** (0.007)	18.70434*** (0.005)
LPOP_P	0.1345** (0,025)	0.134541 (0.463)	-0.09241 (0.591)	-0.09241 (0.66)
LDIST	-0.8247*** (0.000)	-0.82474*** (0.003)	-0.76163*** (0.002)	-0.76163** (0.017)
BORD	0.7102*** (0.000)	0.7102 (0.027)	1.35076* (0.061)	0.756833*** (0.000)
VIS	1.1802*** (0.000)	1.1802*** (0.002)	0.756833*** (0.001)	1.35076*** (0.000)
IFRS	0.155743 (0.294)	0.1557*** (0.000)	0.155083** (0.018)	0.155083*** (0.000)
R-squared	0.9247	0.9247	0.9205[a]	0.9205[a]
Observation	270	270	270	270
F Test	400.71*** (0.000)	109.75*** (0.000)	-	-
Wald Test	-	-	504.63*** (0.000)	854.87*** (0.000)

Note: *, **, *** show a %10, %5 and %1 significance respectively. a: Overall R-squared. Values of p are in parentheses.

In Table 3 OLS model, the LGDP_P, LPOP_P, LDIST, BORD and VIS variables are statistically significant. In the robust OLS model, the LGDP_H, LGDP_P, LPOP_H, LDIST, VIS and IFRS variables are statistically significant. In these two models, all coefficients are in line with expectations. The IFRS dummy has a positive and significant effect on the second model. The GDP of the Czech Republic and partner countries has a positive effect on the exports of the Czech Republic. If national income in foreign countries increases, it leads to an increase in the exports from the Czech Republic. Both the population of the Czech Republic and the population of the partner country have a positive effect on the imports of the Czech Republic in the robust OLS. However, in the OLS model, LGDP_H is not significant. Distance has an adverse effect on exports as it is in line with expectations. Having the same border, and being a Visegrad country, show good relationships; thus, they have a positive coefficient. The IFRS variable has a significant and positive coefficient in the robust OLS model. Therefore, we can see the positive impact of IFRS on the exports from the Czech Republic. Two models have high R-squared values and the results bring to mind multicollinearity at first glance but, if the correlation coefficients are taken in consideration, (in the Appendix) although there is a high and significant correlation between the dependent and independent variables, there is an insignificant, or significant but low, correlation among the independent variables.

If the REM and robust REM model are taken into consideration, we will have nearly the same results. All significant coefficients are in line with expectations. The difference between the REM and Robust REM model is the host country population variable. This is not significant in the REM model and, while it is significant in the robust REM model, it still has a low significance level in the robust model. The directions of the coefficients of the variables are the same with the OLS model.

Table 4. Estimation Results for Exports

Dependent Variable: LEXP				
Variables	**OLS**	**OLS Robust**	**REM**	**REM Robust**
LGDP_H	1.8309** (0,029)	1.8309*** (0,000)	1.4153*** (0,000)	1.4154*** (0,000)
LGDP_P	0.3096*** (0,000)	0.3096*** (0,000)	0.7990*** (0,000)	0.7990*** (0,000)
LPOP_H	10.6830 (0,387)	10.6831** (0,011)	11.3779** (0,017)	11.3779*** (0,003)
LPOP_P	0.578*** (0,000)	0.5785*** (0,000)	0.06589 (0,635)	0.065866 (0,752)
LDIST	-1.027*** (0,000)	-1.0271** (0,041)	-0.8862*** (0,000)	-0.8862*** (0,000)
BORD	0.6411*** (0,000)	0.6411 (0,152)	0.5860* 0,091)	0.5860** (0,043)
VIS	0.5276*** (0,000)	0.5276*** (0,000)	1.0178*** (0,005)	1.0178*** (0,006)
IFRS	0.136 (0,274)	0.1365*** (0,001)	0.1350*** (0,005)	0.1350*** (0,000)
R-squared	0,9388	0,9388	0,9127[a]	0,9127[a]
Observation	270	270	270	270
F Test	500,22*** (0,000)	123,14*** (0,000)	-	-
Wald Test	-	-	751,79 (0,000)	656,26 (0,000)

Notes: *, **, *** show a %10, %5 and %1 significance respectively. a: Overall R-squared. Values of p are in parentheses.

Table 4 shows the gravity model results for the exports variable of the Czech Republic. On the basis of the all four regression results, the distance and the GDP variables are essential in explaining the export relations between the Czech Republic and the EU member countries. Whereas the population of the Czech Republic is significant in the robust OLS, REM and robust REM models, the population of the partner countries is significant in both the OLS and OLS robust models. All these coefficients are positive in all models. This means that both the Czech Republic's population and the partner countries' populations increase the imports of the country. Also, the border effect and the Visegrad Four effect are statistically significant in all models except the OLS robust model which has an insignificant BORD variable. Moreover, all these dummies have a positive effect on exports. Furthermore, the IFRS variable is significant except in the OLS model similar to the previous imports model. Again IFRS affects positively the imports of the Czech Republic. This finding is in accordance with the view that the role of distance is still an effective variable in bilateral trade relations.

5. RESULTS AND CONCLUSION AND AVENUES FOR FURTHER RESEARCH

The gravity model is valid for the relationship of the Czech Republic and EU member countries. Our findings support the previous literature on international trade and gravity in the Czech Republic (e.g. Akhvlediani and Śledziewska, 2016; Babuněk, 2012; Paulus and Michalíková, 2014; Jandová and Paleta, 2015).

Besides that, and contrary to our expectations based on previous findings in the literature on Czech conditions and the implementation of IFRS, where the literature was showing just limited use and impact, we found a significant association between trade and IFRS (Prochazka and Pelak, 2015;

Procházka, 2017 and 2018.IFRS was introduced as voluntary reporting in 2003 and 2005. As stated in the literature until recently, Czech companies did not clearly see the benefits of IFRS introduction because they had to report according to Czech GAAP for tax purposes. Nevertheless, over the years, the proportion of IFRS adoption in Czech companies has been growing and the number of firms using IFRS is increasing. This is in spite of the fact that, until recently, we did not see any significant impact on the Czech economy (Zarova, 2009 and 2013; Jindrichovska, Kubickova 2016 and 2017; and Prochazka, 2017).

We think our present findings constitute a good signal of the increasing quality of the Czech economic and institutional environment, which is in line with the intention to introduce common accounting standards, like IFRS, to increase trading in capital markets and subsequently, or concurrently, to improve the institutional and regulatory environment in the real economy, see e.g., Brüggemann, Hitz, and Sellhorn, 2013; Horton et al., 2013; Marra et al., 2011; Landsman et al., 2012; Kouki, 2018) and that should increase the volume of international trade. This presented paper witnesses also the fact that the environment in European countries is changing, which is the result of globalization and more intensive international trade.

The significant impact of IFRS on Czech trade is now empirically documented in the presented study of the Czech environment, which is the major contribution of this work.

Further investigation could be undertaken in terms of the impact of IFRS on international trade in specific sectors and, or, an improved methodology using triangulation with a qualitative study exploring in more depth relevant institutional features. .Also longer period can be used to see effect of IFRS on all European countries and more dummy variables can be used to see influence of macroeconomic issues. Moreover, Poisson pseudo-maximum-likelihood (PPML) technique may be used to estimate the model.

Acknowledgments

This paper was prepared with the support of the Anglo-American University, z.ú. Unit 3 – Research.

BIBLIOGRAPHY

Akhvlediani, T., & Śledziewska, K. (2016).The impacts of common commercial policy on export performances of Visegrad countries. *Prague Economic Papers*, *26*(1), pp 3–18.

Anderson, J. E. (2011). The gravity model. *Annu. Rev. Econ.*, *3*(1), 133–160.

Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *The American Economic Review*, *69*(1), 106–116.

André, P. (2017). The role and current status of IFRS in the completion of national accounting rules–Evidence from European countries. *Accounting in Europe*, *14*(1–2), 1–12.

Babuněk, O. (2012). Foreign direct investment in Visegrad four and the main trading partners. *Statistika: Statistics and Economy Journal*, *49*(4), 14–26.

Barth, M., Landsman, W., & Lang, M. (2008). International accounting standards and accounting quality. *Journal of Accounting Research, vol. 46, no. 3*, 467–498.

Blažková, I, & Chmelíková, G, (2015) The Impact of Import Competition on the Development of Market Concentration in the Czech Food and Beverages Industry, Proceedings ICABR 2015, X. International Conference on Applied Business Research, September 14–September 18, 2015. Pp. 129–135.

Daske, H., Hail, L., Leuz, C., and Verdi, R. S. (2008). Mandatory IFRS Reporting Around the World: Early Evidence on the Economic Consequences. *Journal of Accounting Research*, 46 (5), 1085–1142.

European Commission, (2018). https://ec.europa.eu/info/sites/info/files/economy-finance/ecfin_forecast_summer_12_07_18_cz_en.pdf

Gujarati, D. (2004). Basic Econometrics, Fourth Edition, The McGraw-Hill Companies, USA.

Hanousek, J., Kočenda, E., & Maurel, M. (2011). Direct and indirect effects of FDI in emerging European markets: A survey and meta-analysis. *Economic Systems*, *35*(3), 301–322.

Horton, J., Serafeim, G., & Serafeim, I. (2013). Does Mandatory IFRS Adoption Improve the Information Environment? *Contemporary Accounting Research, Vol. 30, No. 1*, 388–423

Jandová, M. and Paleta, T. (2015).Gravity Models of Internal Migration – the Czech Case Study. *Review of Economic Perspectives*, 15(1), pp. 3–14.

Jindrichovska, I., Kubickova, D., & Kocmanova, S, (2014). The development of accounting and application of IFRS in the Czech Republic. *Accounting and Management Information Systems*, 13(2), 198–235.

Jindrichovska, I., & Kubickova, D. (2016).Economic and Political Implications of IFRS Adoption in the Czech Republic. In Uchenna, E., Nnadi, M., Tanna, S., & Iyoha, F., *Economics and Political Implications of International Financial Reporting Standards* (105-132). Hershey, PA: IGI Global. doi:10.4018/978-1-466-9876-5.

Jindrichovska, I., & Kubickova, D. (2017). The Role and the Current Status of IFRS in the Completion of National Accounting Rules – Evidence from the Czech Republic, *Accounting in Europe*, 14(1–2), 56–66.

Kouki, A. (2018). Mandatory IFRS adoption, investor protection and earnings management: A data analysis of Germany, France and Belgium listed companies. *International Journal of Accounting & Information Management, Vol. 26 Issue: 1*, 187–204.

Landsman, W. R., Maydew, E. L., & Thornock, J. R. (2012). The information content of annual earnings announcements and mandatory adoption of IFRS.*Journal of Accounting and Economics*, 53(1–2), 34–54.

Marra, A., Mazzola, P., & Prencipe, A. (2011). Board Monitoring and Earnings Management Pre- and Post-IFRS. *The International Journal of Accounting 46* , 205–230.

Medvedev, A., & Zemplinerova, A. (2005) Does competition improve performance? Evidence from the Czech manufacturing industries. *Prague Economic Papers*, *14*(4), 317–330.

Mejzlik, L. & Zarova, M. (2009). *Impact of IFRS Implementation on the Architecture of the Regulatory Accounting System in the Czech Republic*, In: Proceedings of EAA – 32nd Annual Congress. Tampere: EAA.

Muratoğlu, G., Uğurlu, E., & Muratoğlu, Y. (2017). Trade Flows between Russia and Other Black Sea Economic Cooperation Countries: A Gravity Model Analysis. *Gumushane University Electronic Journal of Institute of Social Sciences*, 8(20), 287–307.

Nishitateno, S. (2014). Network Effects on Trade in Intermediate Goods: Evidence from the Automobile Industry. *Departmental Working Papers*. The Australian National University, Arndt-Corden Department of Economics.

Paas, T., and Tafenau, E. (2005). European Trade Integration in the Baltic Sea Region—A Gravity Model Based Analysis. *Hamburg Institute of International Economics* Discussion Paper No. 331. Hamburg: Hamburg Institute of International Economics.

Paulus, M., and Michalíková, E. (2014) Gravity Model Analysis: Robust Evidence from the Czech Republic and Corruption Matching. *Working Papers IES 2014/32*. Charles University Prague, Faculty of Social Sciences, Institute of Economic Studies, revised Sep 2014.

Procházka, D. (2017). Forced IFRS Adoption: Direction of the “EU-15 Parents-CEE Subsidiaries” Links. In New Trends in Finance and Accounting. Švýcarsko: Springer International Publishing, 2017, 361–371.

Procházka, D. (2018) Financial Performance of Czech Subsidiaries of the EU-Listed Companies. In: Procházka D. (ed.) The Impact of Globalization on International Finance and Accounting. Springer Proceedings in Business and Economics. Springer, Cham.

Ravishankar, G. and Stack, M. (2014). The Gravity Model and Trade Efficiency: A Stochastic Frontier Analysis of Eastern European Countries' Potential Trade. *The World Economy*, 37(5), pp. 690–704.

Roy, M., and I. Rayhan. 2012. Import Flows of Bangladesh: Gravity Model Approach under Panel Data Methodology, *Dhaka Univ. J. Sci.* 60(2): 153–157.

Sichei, M., Erero, J. and Gebreselasie, T. (2008).A n augmented gravity model of South Africa's exports of motor vehicles, parts and accessories. *South African Journal of Economic and Management Sciences*, 11(4), pp. 494–510.

Šimáková, J. (2014). Extended Gravity Model of International Trade: An Empirical Application to Czech Trade Flows. In D. Stavárek and P. Vodová, eds. *Proceedings of the 14th International Conference on Finance and Banking*. Karviná: Silesian University, School of Business Administration, pp. 416–421

Tinbergen, J., (1962). Shaping the World Economy: Suggestions for an International Economic Policy, New York, Twentieth Century Fund.

Ugurlu, E. (2010). Growth and Openness Relationship In The EU-15: Panel Data Analysis, *Ekonomika*, 89(2), pp. 44–54.

Wlazel, M. (2014). *Gravity model for Czech Republic – Test of the effects of indirect trade*. Master's Thesis. Charles University in Prague, Faculty of Social Sciences, Institute of Economic Studies.

Zarova M. (2009). Dopad směrnice ES na vykazování účetních informací pro malé a střední podniky, [Impact of the EU regulation on the reporting of accounting information for small and medium sized enterprises] *Český finanční a účetní časopis*, *[Czech financial and accounting journal]* vol. 4, no. 3, 73–77.

Zarova, M. (2013b). Could New Accounting Directive Improve European Financial Reporting? *European Financial and Accounting Journal,* vol. 8, no. 2, 4–6.

MODELLING THE DYNAMIC CONDITIONAL CORRELATIONS: THE CASE OF COBALT AND LITHIUM PRICE INCREASE AND VOLATILITY OF TESLA MOTORS INC. SHARES

Petr SEĎA
Technical University of Ostrava, Czech Republic
petr.seda@vsb.cz

José Carlos CASAS-ROSAL, Juan Antonio JIMBER DEL RÍO, Nuria Ceular VILLAMANDOS
University of Córdoba, Spain
jcasas@uco.es, jjimber@uco.es, nuria.ceular@uco.es

Abstract
In recent years, a significant increase of demand for lithium and cobalt has led to a high increase of the price of these commodities due to their reduced availability. Cobalt and lithium are source of power batteries that are utilized in electric cars. Tesla Motors Inc. company became a key player on electric vehicles market. The stability of production of electric vehicles and their subsequent commercialization is affected by many risk factors. The shortage of renewal of cobalt and lithium, limited resources and the instability of some supplier countries like D. R. of Congo are some of them. The dependence of Tesla Motors Inc. on these two metals is evident. In addition to this, the profit of Tesla Motors Inc. reached negative values despite of annual revenue growth. Operating costs including raw materials for batteries (lithium cobalt included) grew proportionately. The aim of this paper is to model prices shocks of cobalt and lithium on Tesla Motors Inc. volatility. In this paper, the Dynamic Conditional Correlations model has been estimated to examine potential effects of cobalt and lithium price fluctuations on volatility of Tesla shares. The results of estimated models suggested that changes in lithium price have statistically significant impact on volatility of Tesla Motors Inc. shares during testing period of 2013–2017. In the case of cobalt prices fluctuations, the hypothesis of significant impact on Tesla Motors Inc. volatility can be rejected.

Keywords: *cobalt, DCC GARCH model, lithium, Tesla Inc., volatility*

1. INTRODUCTION

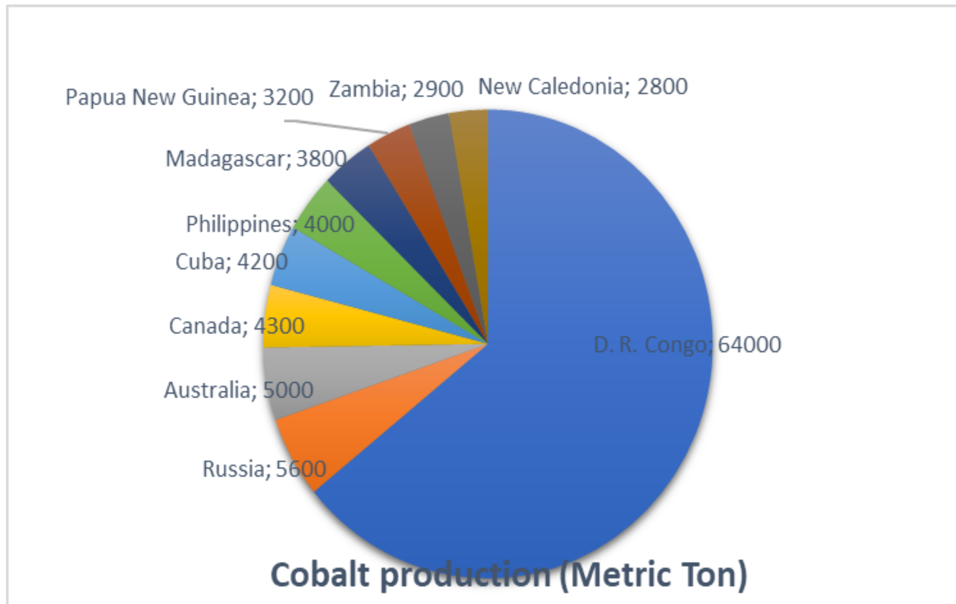
The development and current technological innovations have triggered the importance of certain metals called critical such as cobalt and, to a lesser extent, lithium. These metals are necessary to produce batteries, and specifically those of electric vehicles. (Slack, Kimball, and Shedd, 2017). Since 2007, smartphones production has skyrocketed (Sommer, Rotter, and Ueberschaar, 2015). This fact has increased demand for these raw materials. However, the production of electric vehicles is the most determining factor in the recent concern around these metals. Cobalt and lithium are highly required for batteries manufacture. This increase in demand has generated a supply crisis due to the scarcity of these materials in the earth's crust as well as geopolitical problems for the main supplying regions like Democratic Republic of Congo, which has caused a considerable increase of prices of these materials in the market (Sonoc and Jeswiet, 2014).

Cobalt is a silver-grey metal that has various uses based on certain key properties including ferromagnetism, hardness and wear resistance when alloyed with other metals. It is used, above all, in rechargeable batteries cathodes and, in combination with other metals, to form super-alloys for jet turbine engines manufacture. It is an indispensable material to prolong lithium batteries life.

In 2016, approximately 123,000 metric tons of cobalt were produced (Ober, 2018). 55% of this amount were extracted only in the D. R. of Congo (Fig. 1). The future substitution of vehicles powered by fossil fuels would require a much higher production than the current world reserve of this metal is available to offer. This has caused strong speculative operations in ram material

markets in recent years. Moreover, US government and companies that depend on these metals started to accumulate shares of Apple or Tesla Motors Inc.

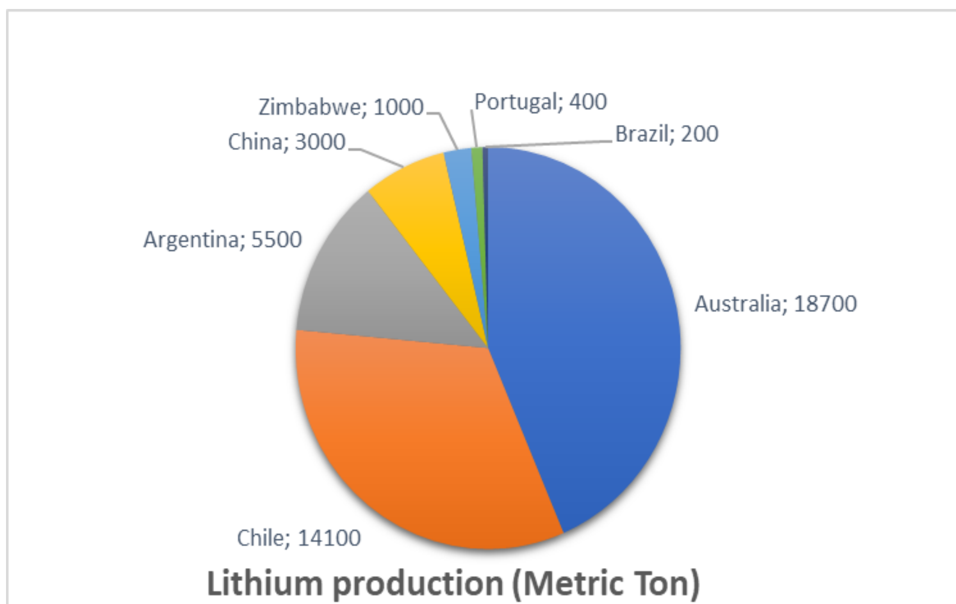
Figure 1. World Cobalt production in metric tons by countries in 2017



Source: www.investing.com

On the other hand, lithium is the lightest metal that exists. This metal is extracted through brine and granitic pegmatite minerals, usually as a trace element (U.S. Geological Survey, 2015). In last years, the main countries that produce this metal are Chile and Australia (Fig. 2). This element has a wide variety of utilization. The most outstanding uses are for mobile phones, laptops and electric and hybrid vehicles batteries. The advantage of this metal lies in its light weight and high electro-chemical potential.

Figure 2. World lithium production in metric tons by countries in 2017



Source: www.investing.com

Unlike fossil fuels, lithium and cobalt have a characteristic that makes them more sustainable (Izatt et al., 2014). The both metals are repeatedly recyclable. This is a fundamental factor, because it turns the products that consume these metals resources into future suppliers.

The increasing high demand for these two metals causes a handicap for the main electric vehicle manufacturers like Tesla, General Motors and Ford. These car producers are currently involved in the development and marketing of these type of cars. About 50% of the value of an electric vehicle falls on its battery. Therefore, an increase in the price of the two raw metals used for production of batteries for electric cars has a direct effect on manufacturing cost and commercialization as well.

Tesla Motors Inc. is a US company responsible for the design, production and marketing of electric vehicles and energy storage systems through the creation of highly efficient lithium ion batteries (Berdichevsky, et al., 2006). That is why, the dependence on these two raw materials is evident.

It should be stressed that profit of Tesla Motors Inc. reached negative values in 2017 despite of annual growth of revenues. The reason for that is obvious. Operating costs including raw materials for batteries (lithium and cobalt included) grew proportionately. Table 1 shows detailed information on economic results of Tesla Motors Inc.

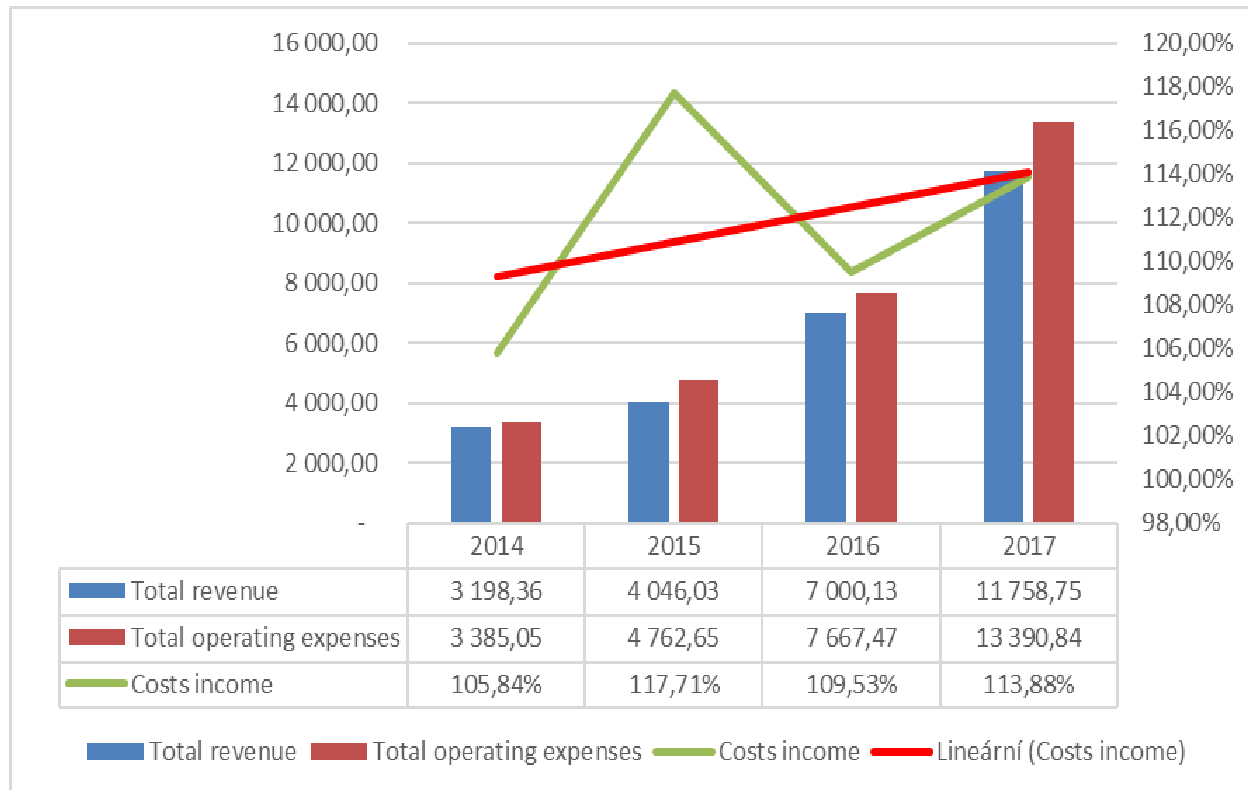
Table 1. Economic results of Tesla Motors Inc.

	2014	**2015**	**2016**	**2017**
Total revenues	3,198.36	4,046.03	7,000.13	11758.75
Income	3,198.36	4,046.03	7,000.13	11758.75
Consumption and other external expenses	2,316.68	3,122.52	5,400.88	9,536.26
Gross profit	881.67	923.50	1,599.26	2,222.49
Total operating expenses	3,385.05	4,762.65	7,667.47	13390.84
Result of exploitation	-186.69	-716.63	-667.34	-1632.09
Financial income	-99.76	-117.34	-164.18	-451.57
Others – Net	1.81	-41.65	85.17	-125.37
Ordinary result before tax	-284.64	-875.62	-746.35	-2209.03
Imposition over benefits	9,40	13.04	26.70	31.55
Profit for the year from continuing operations	-294.04	-888.66	-773.05	-2240.58
Profit attributable to minority interests	-	-	98.13	279.18
Result from continuing operations	-294.04	-888.66	-674.91	-1961.40
Result attributed to the group	-294.04	-888.66	-674.91	-1961.40
Result from continuing operations (net of minority)	-294.04	-888.66	-674.91	-1961.40
Result of the exercise	-294.04	-888.66	-674.91	-1961.40
Weighted average result per share	124.54	128.20	144.21	165.76
Earnings per share for the period	-2.36	-6.93	-4.68	-11.83

Source: www.investing.com

Figure 3 shows total revenues, total operating costs and the percentage of expenditure over income of Tesla Motors Inc. When analysing the data in Figure 3, the increasing trend of costs income in percentage is evident. The development of this economic variable can be simplified by increasing linear trend.

Figure 3. Total revenues, total operating expenses and cost income of Tesla Motors Inc.



	2014	2015	2016	2017
Total revenue	3 198,36	4 046,03	7 000,13	11 758,75
Total operating expenses	3 385,05	4 762,65	7 667,47	13 390,84
Costs income	105,84%	117,71%	109,53%	113,88%

Source: own calculations in Excel

The analysis of the volatility of the prices of cobalt and lithium and their modeling can allow us to investigate and measure the risk of Tesla Motors Inc. assets. That is why, the main objective of this paper is to analyse potential impact of Lithium and Cobalt price fluctuations on the volatility of Tesla Motors Inc. Daily prices of cobalt and lithium raw materials, and Tesla Motors Inc. stock market quotations were collected from September 2013 until March 2018.

The rest of this paper is organised as follows. First, we will introduce the multivariate conditional heteroskedasticity model with time-varying conditional correlations and associated estimation techniques. Next, descriptive analysis of the collected data will be carried out. Further, we will estimate respective DCC GARCH models and corresponding dynamic conditional correlations. These correlations will be visualized in the form of line chart. Finally, estimated results will be discussed, and some key conclusions will be summarized.

2. METHODOLOGY

In the first step, theoretical models applied to investigate potential impact of fluctuations in the price of lithium and cobalt metals on Tesla, Inc.'s stock market volatility will be briefly described. Provided analysis can justify significant dependence of Tesla Motors Inc. production on cobalt and lithium price market fluctuations. We expect that a significant increase in prices could affect the volatility of shares significantly.

In this subchapter, the brief information on multivariate GARCH model with time varying dynamic conditional correlations, which is called the DCC GARCH model, will be delivered. Moreover, the estimation procedure will be shortly described as well. Traditional univariate volatility models that were defined by Engle (1982) or Bollerslev (1986) can be used just when modelling the volatility of one time series. Nevertheless, investigating and modelling the dependencies in the co-movements of different time series is very important in practical economic analysis as well. By identifying this feature of financial time series using a multivariate model we

can get more precise and realistic picture of reality than in the case of using separate univariate models. Therefore, the DCC GARCH model represents a useful tool for analysing volatility of time series when the volatility is changing over time. The DCC GARCH model is based on the idea of the conditional variances and respective correlations (Seďa, 2015). The most important part of this model is conditional covariance matrix that can be decomposed into a correlation matrix and related conditional standard deviations.

Robert Engle (2002) proposed three steps estimation of the DCC GARCH model. First, the univariate conditional linear or non-linear volatility models including standardised residuals should be estimated to get standardized residuals. In this paper, linear GARCH (Bollerslev, 1986) and non-linear EGARCH (Nelson, 1991) models are considered. Second, when the univariate conditional volatility models are estimated, standardized residuals are then used to estimate respective correlations. The variance covariance matrix of paired residuals can be decomposed to $D_t \rho_t D_t$, where D_t represents a diagonal matrix of time-varying conditional standard deviations that are estimated by univariate conditional volatility models (Seďa, 2011). The specification of the DCC GARCH model can be written as follows:

$$\begin{aligned}
&r_t / \Omega_{t-1} \sim N(0, D_t \rho_t D_t), \\
&D_t^2 = diag\left\{\Sigma_t\right\}, \Sigma_t = \text{cov}(r_t / \Omega_{t-1}), \\
&\varepsilon_t = D_t^{-1} r_t, \\
&\rho_t = diag\left\{Q_t\right\}^{-1/2} Q_t \; diag\left\{Q_t\right\}^{-1/2}, \\
&Q_t = \left(1-\alpha-\beta\right)\bar{Q}_t + \alpha \varepsilon_{t-1} \varepsilon'_{t-1} + \beta Q_{t-1},
\end{aligned} \tag{1}$$

where r_t represents logarithmic returns, Ω_{t-1} is an information set available at time t-1, ρ_t denotes the time-varying correlation matrix, $\bar{Q}_t$ represents the matrix of unconditioned variances ε_t, ε_t are standardised residuals and α, β are nonnegative parameters that have to be positive. It holds that $\alpha + \beta < 1$. Univariate and multivariate conditional volatility models are estimated using the maximum likelihood method. Finally, the correlation matrix is normalized and adjusted to fulfill required properties of correlation matrix (Engle, 2002). The bivariate dynamic conditional correlation $\rho_{1,2,t}$ then can be expressed in the following way:

$$\rho_{1,2,t} = \frac{E_{t-1}(\sqrt{E_{t-1}(r_{1,t}^2)}\varepsilon_{1,t}\sqrt{E_{t-1}(r_{2,t}^2)}\varepsilon_{2,t})}{\sqrt{E_{t-1}(r_{1,t}^2)E_{t-1}(\varepsilon_{1,t}^2)E_{t-1}(r_{2,t}^2)E_{t-1}(\varepsilon_{2,t}^2)}} = E_{t-1}(\varepsilon_{1,t}\varepsilon_{2,t}). \tag{2}$$

The bivariate dynamic conditional correlation between Tesla Motors Inc. and lithium is finally regressed on a constant, time trend, and conditional volatilities of both time series:

$$\rho_{1,2,t} = \beta_0 + \beta_1 t + \beta_2 \rho_{1,2,t-1} + \beta_2 \sigma_{1,t} + \beta_2 \sigma_{2,t} + \varepsilon_{1,2,t}, \tag{3}$$

where t represents the time trend because some conditional correlations may exhibit a trend that means changing integration between markets, $\rho_{1,2,t-1}$ denotes lagged values of the dynamic conditional correlations, $\sigma_{1,t}$ is the conditional standard deviation of Tesla Motors Inc. values, and $\sigma_{2,t}$ is the conditional standard deviation of lithium market.

Conditional volatilities that are estimated by univariate conditional volatility models usually exhibit high persistence. If we don´t use any lagged value of the dynamic conditional correlation in equation (3), it may lead to high values of autocorrelation in residuals. To avoid this problem, we estimated equation (3) on lagged value of the dynamic conditional correlations by one period. The presence of autocorrelation in residual term is then verified by Ljung-Box test (Ljung and Box, 1979). Further, we will test for the presence of heteroskedasticity using White test (White, 1980).

3. EMPIRICAL RESULTS

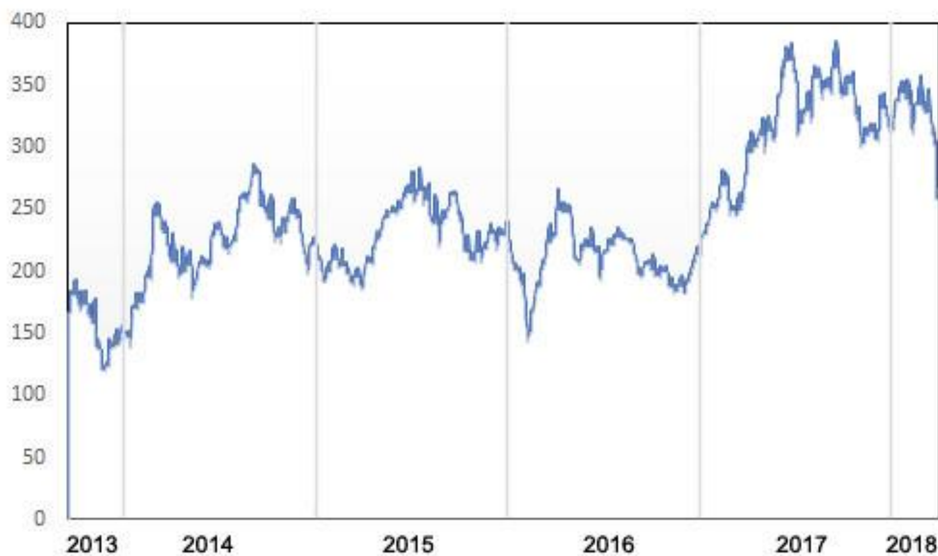
In this chapter, we describe the data sample used in this research. Our sample consists of three time series: the values of Tesla Motors Inc. company quoted in the Nasdaq market, the price of cobalt that is quoted in London's metals stock exchange and lithium value, which is not quoted in any market, because its price depends on specific characteristics such as type, volume or purity. The value of lithium will be measured through the Global Lithium Index that was developed by the Solactive engineering company index admitted as the main indicator of this metal price. The analyzed data correspond to daily values between September 2013 and March 2018.

3.1 Description of Tesla Motors Inc., lithium and cobalt market values

Tesla Motors Inc. company started to operate in 2003. Its purpose was to manufacture and promote electric vehicles getting financed through different private funds. In June 2010, it went public at a price of 17 USD per share. In September 2017, its value broke the value of 300 USD.

The development of Tesla Motors Inc. company shares from September 2013 to March 2018 is shown in Figure 4. The horizontal black line represents the initial stock market value. In 2013, its value increased by 372%, although in October it lost 17% due to the negative economic results get in the second quarter of the year. At the beginning of 2014, Tesla Motors Inc. provided a strong promotion that was supported by the production results in previous year, Apple's interest in acquiring the company and the high revaluation expectations granted by the rating consultancies.

Figure 4. The values of Tesla Motors Inc. shares (USD per share) from Sept 2013 to Mar 2018



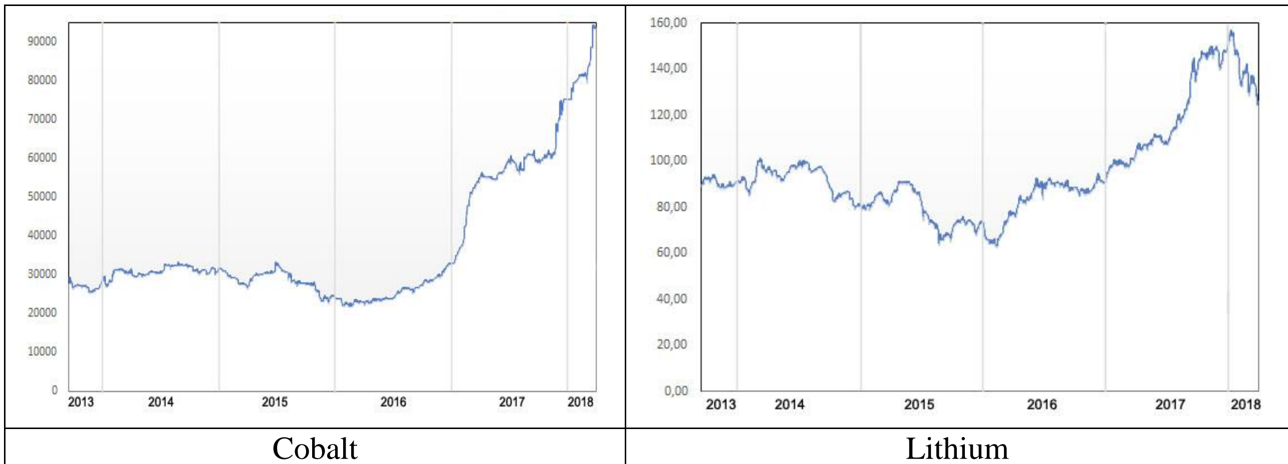
Source: own calculations in Eviews

Between September 2014 and April 2015, one can see a significant decrease due to oil lower price and the delay in the company's profit expectations until 2020. At the beginning of 2016, there was a sharp decrease after reporting losses of more than 800 million USD in previous year, which was caused by presentation of its new model Tesla Model 3, and important improvements of its emblem product Tesla Model S. From January 2016 to September 2017, the value has continued increasing with some ups and downs to settle at values close to 400 USD. Since then, the value of the company has dropped below 270 USD coinciding with a sharp increase in cobalt price.

Figure 5 shows the evolution of the values of cobalt and lithium that are associated with Tesla Motors Inc. production. The valuation of both metals shows a clear upward trend that is more pronounced from the end of 2016. However, while the value of cobalt continues rising sharply, lithium has fallen since the beginning of 2018. Both metals reached their minimum and maximum values in the considered period almost at the same date. While minimum cobalt value was 21.665 USD per metric ton, lithium price reached 69.79% of its beginning value in 2010. In

February 2016, both metals reached their maxima. Cobalt got the value of 94.300 USD per ton while lithium index reached the value of 156.80 respectively. Moreover, the decrease observed since the end of 2014 until the beginning of 2016 probably coincides with the sharp drop in oil price, which began to rise from that moment.

Figure 5. Cobalt and lithium values



Cobalt	Lithium

Source: own calculations in Eviews

Figure 6 shows the evolution of cobalt and lithium prices that are visualized together with Tesla Motors Inc. company market values. Both time series are expressed in the same chart with two different scales. One can see a strong correlation in both charts. Even if a sharp rise in the price of both metals would increase manufacturing costs in the medium term, the increase in the value of cobalt and lithium is accompanied by a revaluation of Tesla Motors Inc. company. This behavior seems to be reversed when cobalt price exceeds the value of 75.000 USD per metric ton.

Figure 6. Comparison of cobalt and lithium prices against Tesla Motors Inc. prices

Cobalt and Tesla Motors Inc.	Lithium and Tesla Motors Inc.

Source: own calculations in Eviews

Although the development of cobalt, lithium and of Tesla Motors Inc. prices have been investigated, it is necessary to utilize daily returns to estimate the DCC GARCH models.

The daily returns of respective time series have been defined as the difference of the logarithm of prices at time t and t-1:

$$r_t = \ln(p_t) - \ln(p_{t-1}). \tag{4}$$

Logarithmic returns allow us to eliminate the stationarity lack problem so that multivariate conditional heteroscedasticity models according to equation (1) can be estimated.

3.2 Estimation of the DCC GARCH models and conditional dynamic correlations

Once analyzed the possible existence of positive correlation between the volatility of cobalt and lithium raw materials prices, and the quotations of Tesla Motors Inc. in Figure 6, we will quantify the dynamic conditional correlation between those time series using the DCC GARCH models according to equation (2).

Table 2. Estimation of linear DCC GARCH model between lithium and Tesla Motors Inc.

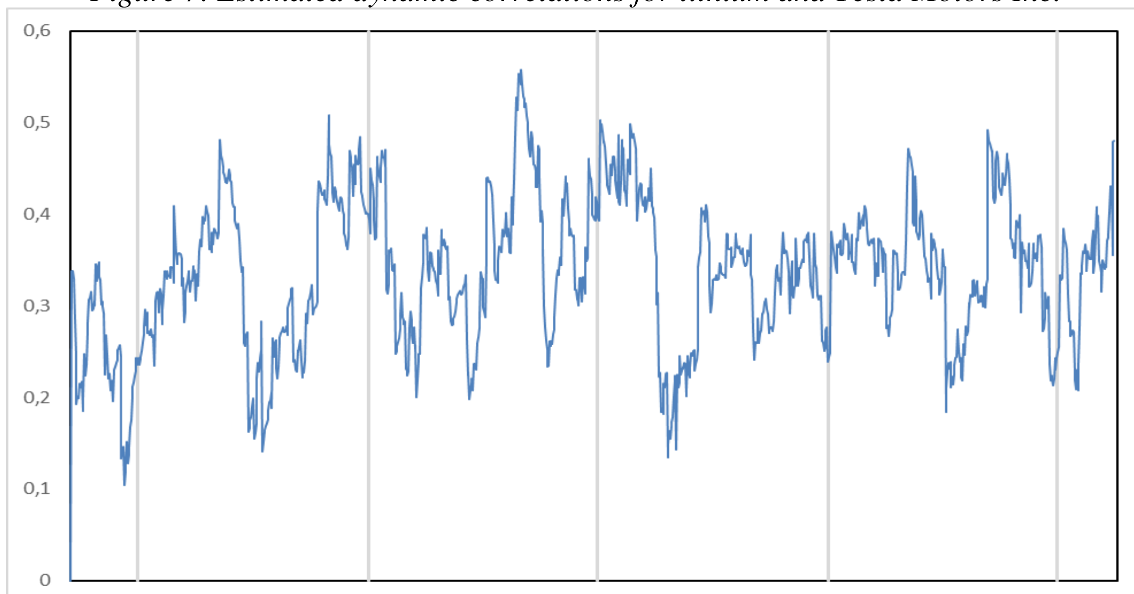
	Coefficient	Std. Error	*z*-statistic	Probability
theta(1)	0.066208	0.021571	3.069272	0.0021
theta(2)	0.807251	0.066637	12.11407	0.0000
Log likelihood	6100.624	Schwarz criterion		-13.5189
Avg. log likelihood	3.400571	Hannan-Quinn criterion		-13.5553
		Akaike info criterion		-13.5778

Source: own calculations in Eviews

Unfortunately, we didn´t found any statistically significant and correct linear or non-linear DCC GARCH model for cobalt and Tesla Motors Inc. The estimation of the linear DCC GARCH model for lithium and Tesla Motors Inc. is shown in Table 2. The dynamic correlations are later expressed graphically in Figure 7. The condition of stability of estimated model is holding. The sum of the coefficients α and β that are expressed by symbols theta (1) and theta (2) in Table 2 is less than 1. In addition to this, the significance of both coefficients, as well as the positivity condition, allows us to affirm that the correlation matrix is positive definite. This fact implies a high temporal relationship between the lithium index and Tesla Motors Inc. To sum up, estimated DCC GARCH model for lithium and Tesla Motors Inc. can be written in the following way:

$$Q_{i,j,t} = \omega_{i,j} + 0.066208\varepsilon_{i,t-1}\varepsilon_{j,t-1} + 0.807251Q_{i,j,t-1}.$$

Figure 7. Estimated dynamic correlations for lithium and Tesla Motors Inc.



Source: own calculations in Eviews

Regarding dynamic conditional correlations, we affirm that the values of correlations always reached positive values. An increase of lithium value produces an increase of Tesla Motors Inc.

company value. Figure 7 also shows that the volatility of correlation is decreasing during time. The lowest value was observed at the end of 2013 and the highest value in the third quarter of 2015.

The descriptive statistics of the dynamic conditional correlation are presented in Table 3. All the values of the dynamic conditional correlations reached just positive values during the whole testing period. The mean value is 0.336, the highest value (0.558) is reported at the beginning of February 2015 while the minimum (0.104) was reached in December 2013.

Table 3. Descriptive statistics of the estimated dynamic conditional correlations

Mean	Standard Deviation	Minimum	Date	Maximum	Date
0.336	0.080	0.104	09/12/2013	0.558	09/02/2015

Source: own calculations in Eviews

Finally, we estimated relationships among dynamic conditional correlations and volatilities of respective time series (Syllignakis and Kouretas, 2011). Table 4 delivers a summary of results according to equation (3). The dynamic conditional correlations are explained in terms of conditional volatilities of both time series. The volatility of Tesla Motors Inc. is negative but not statistically significant while the volatility of lithium is positive and significant at 5% significant level. The impact of lithium volatility on the dynamic conditional correlations is undeniable and truly essential. The coefficient of the lagged dependent variable (0.939) is significant at the 5% level as well while time trend was insignificant. Based on the Ljung-Box test and Durbin-Watson tests, the presence of autocorrelation in residual term can be clearly rejected. The same conclusion can be made for heteroskedasticity in residuals according to White test.

Table 4. Results of estimated regression model according to equation (3)

Constant	Time	$\rho_{1,2,t-1}$	$\sigma_{1,t}$	$\sigma_{2,t}$	R^2_{adj}	Durbin-Watson
0.015*	5.18E-07	0.939*	-2.271	126.042*	0.906	2.041

Source: own calculations in Eviews

4. DISCUSSION AND CONCLUSIONS

Tesla Motors Inc. is a company that manufactures and sales electric vehicles. Economic results of this company has a strong dependence on the prices of cobalt and lithium. Unfortunately, cobalt and lithium prices reached high values due to high demand and the shortage of availability of these raw materials. Even if, the quotation of Tesla Motors Inc. Company has shown an increasing trend since 2013, these trends have been damped and even reversed in some periods. The same is true for the values of cobalt and lithium, which are basic for manufacturing batteries for vehicles.

In this paper, we have estimated the dynamic conditional correlation models that allow us to study the relationship of the value of these metals and the prices of Tesla Motors Inc. After numerous attempts, we discarded the model that models relationship between cobalt and Tesla Motors Inc. due to negative values of estimated coefficients. The second estimated model that models the volatility of Tesla Motors Inc. that is based on the values of lithium index. We get a model that is stable and whose matrix is positively defined. This model allows us to conclude the existence of a direct and time varying correlation in intensity between the price of lithium and volatility of Tesla Motors Inc.

The high dependence of the Tesla Motors Inc. company on these two raw metals, together with strong demand they have, the shortage of renewal and the instability of some of supplier countries, which can cause an escalation in their value, represent risk factors for stability of the production of electric vehicles and their subsequent commercialization.

BIBLIOGRAPHY

Berdichevsky, G., Kelty, K., Straubel, J. B., & Toomre, E. (2006). The Tesla Roadster battery system. *Tesla Motors*, [online] Available: http://www.batterypoweronline.com/images/PDFs_articles_whitepaper_appros/TeslaRoadsterBatterySystem.pdf

Bollerslev, T. (1986). Generalized Autoregressive Conditional Heteroskedasticity. *Journal of Econometrics, 31*, 307–327.

Engle, R. F. (1982). Autoregressive Conditional Heteroscedasticity with Estimates of the Variance of United Kingdom Inflation. *Econometrica, 50*, 987–1007.

Engle, R. F. (2002). Dynamic Conditional Correlation: A Simple Class of Multivariate Generalized Autoregressive Conditional Heteroskedasticity Models. *Journal of Business and Economic Statistics*, 20, 339–350.

Izatt, R. M., Izatt, S. R., Bruening, R. L., Izatt, N. E., & Moyer, B. A. (2014). Challenges to achievement of metal sustainability in our high-tech society. Chemical Society Reviews, 43(8), 2451–2475. doi: https://doi.org/10.1039/C3CS60440C

Ljung, G. M. and Box, G. E. P. (1978). On a Measure of a Lack of Fit in Time Series Models. *Biometrika*, 65(2), 297–303.

Nelson, D. B. (1991). Conditional heteroskedasticity in asset returns: A new approach. *Econometrica*, *59,* 347–370.

Ober, J. A. (2018). Mineral commodity summaries 2018 Mineral Commodity Summaries (pp. 204). Reston, VA, doi: https://doi.org/10.3133/70194932

Seďa, P. (2011). Asymmetric Conditional Volatility Modeling: Evidence from Central European Stock Markets. In *8th International Scientific Conference on Financial Management of Firms and Financial Institutions*, Ostrava: VŠB – Technical University of Ostrava, 375–383.

Seďa, P. (2015). Modelling the Impact of Oil Price Fluctuations on Volatility of Stock Markets. In *Proceedings of the 9th International Days of Statistics and Economics* (pp. 1386–1396). Praha: Melandrium.

Slack, J. F., Kimball, B. E., & Shedd, K. B. (2017). Cobalt. In K. J. Schulz, J. J. H. DeYoung, R. R. Seal Ii & D. C. Bradley (Eds.), Professional Paper (pp. 52). Reston, VA.

Sommer, P., Rotter, V. S., & Ueberschaar, M. (2015). Battery related cobalt and REE flows in WEEE treatment. Waste Management, 45, 298–305. doi: https://doi.org/10.1016/j.wasman.2015.05.009

Sonoc, A., & Jeswiet, J. (2014). A Review of Lithium Supply and Demand and a Preliminary Investigation of a Room Temperature Method to Recycle Lithium Ion Batteries to Recover Lithium and Other Materials. Procedia CIRP, 15, 289–293. doi: https://doi.org/10.1016/j.procir.2014.06.006

Syllignakis, M. N. and Kouretas, G. P. (2011). Dynamic correlation analysis of financial contagion: Evidence from the Central and Eastern European markets. *International Review of Economics and Finance*, 20, 717–32.

U.S. Geological Survey (2015). Commodity Statistics and Information. Statistics and information on the worldwide supply of, demand for, and flow of minerals and materials essential to the U.S. economy, the national security, and protection of the envir. [online], Available: http://minerals.usgs.gov/minerals/pubs/commodity/

White, H. (1980). A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity. Econometrika, 48(4), 817–838.

THE ACCURACY OF ASSOCIATIVE GRAPH DATA STRUCTURES IN BUSINESS BANKRUPTCY PREDICTION

Joanna WYROBEK
Cracow University of Economics, Poland
wyrobekj@uek.krakow.pl

Abstract
The purpose of the paper was to analyze the usefulness of the AGDS structures (Associative Graph Data Structures) as a standalone method for the bankruptcy prediction of Polish commercial companies. As a benchmark the following methods were used: the linear discriminant analysis, the logistic function, support vector machines, Naïve Bayes, a single decision tree, random forest based on decision trees and gradient boosted decision trees. The contribution of this paper is that is verifies the usefulness of the new machine learning technique in the field of bankruptcy prediction, namely AGDS (using own implementation written in java). The novelty factor of the paper is that firstly it tests the usefulness of the new technique in bankruptcy prediction and secondly, it uses a representative sample of Polish companies (the majority of previous publications did not use a representative sample, this paper compares machine learning methods which were trained on a representative sample of companies)..

Keywords: *associative graph data structures, bankruptcy prediction, corporate finance, machine learning*

1. INTRODUCTION

Machine learning methods are nowadays used to manage traffic, drive cars, airplanes, or recognize pictures, voice and text, find places of possible terrorist attacks, for teaching, adjusting advertisements to the individual's preferences, they are also used by politicians and the police. Currently, machine learning is one of the most popular research areas in banks, various sorts of financial institutions, international corporations, and ministries (based on job advertisements). Institutions are very actively looking for data scientists capable of writing self-contained and self-reliant programs which take-in data and return required results completely without any intervention of any human user. Examples of current research directions include (Brynjolfsson, Mcaffee, 2017, pp. 1–8):

(1) robo-advisory, i.e., automatic systems that advise on asset management,
(2) artificial intelligence trading,
(3) risk management,
(4) insurance underwriting and claims, i.e., personalized underwriting.

Another popular and common application of these methods is bankruptcy prediction (Barbosa, 2017) because machine learning models proved to be very useful in credit risk estimation and insolvency prediction. Bankruptcy or insolvency prediction plays an important role in financial management of a company. If a company can predict for itself and its co-operatives when and who would fail on payments, it can avoid bad debts and many wrong business decisions. For example, a company would know which clients should be given trade credit, whether it should give a loan to another company, which cooperatives are trustworthy, or whether the company itself should apply for another loan. This is why bankruptcy prediction methods are in such a high demand and are commonly and widely used in many applications. Although these two terms are not equivalent, bankruptcy or insolvency prediction methods can be considered to belong to the wider group of credit risk assessment techniques, which are used to predict the possibility of a default on debt that may arise from the borrower failing to make required payment. Such probability can be expressed in the form of a credit risk rating.

Bankruptcy or insolvency prediction techniques share certain characteristics. First of all, they are never 100% accurate, because the list of insolvency determinants is infinite and many of these

determinants have a discrete nature. It is not possible to collect sufficient data to control for all possible factors. Secondly, accuracy of the prediction requires not only a broad (representative) sample of companies, but also it requires timely data, as bankruptcy factors change over time (for this reason the central bank of France publishes bankruptcy prediction model which is adjusted every year for new current data which is added to the sample). Thirdly, many industries significantly diverge from some general pattern for a company in a particular economy and need to be analyzed separately to receive useful results. Fourthly, it is believed that if one limits analysis to one country instead of analyzing the entire world, it can also improve the accuracy of the model.

Abovementioned characteristics do not result from a particular technical solution which is used to predict insolvency, but from changes to global economic conditions, differences in cultures, different legal systems in countries, many other macro and microeonomic reasons.

This is why new solutions in this field are always well-welcomed, especially, if they result with a simple and efficient tool that can be used by entrepreneurs.

2. RESEARCH GOAL AND PAPER STRUCTURE

The purpose of the paper is to test the accuracy of the method called Associative Graph Data Structure (AGDS) when it is applied to bankruptcy prediction of Polish commercial companies. We chose the Polish data sample because it was the only data sample big enough to be representative for all companies in Poland.

AGDS structures were firstly described by Horzyk in 2013 (Horzyk, 2013) and they were not tested on bankruptcy data sets. Therefore, the purpose of the paper is to analyze the accuracy of this method in comparison to traditional bankruptcy prediction methods (logit and discriminant analysis) and selected machine learning methods. Boosted decision trees are winners of many ML competitions (Johnson 2012) and it is a method which works great with very few adjustments (out of the box).

The organization of the paper is as follows. In the Section 3, we explain the AGDS structure and how it is trained. In the Section 4,we are going to present previous research on adoption of machine learning methods to bankruptcy prediction. In the Section 5 we are going to present the research methodology. Finally, in the Section 6 we are going to present results of model training and evaluation and in the Section 7 we are going to verify the research hypothesis and include final conclusions and directions for further research.

3. IDEA AND IMPLEMENTATION OF THE AGDS STRUCTURE

According to Horzyk (2013, p. 12) "Associative Graph Data Structures are graphs which nodes can represent values, subsets, or ranges of values of the same attribute, and combinations of values of various attributes." AGDS structures create the AVB tree for every attribute of the observation's vector and also create nodes which represent objects (observations) (Horzyk, 2018).

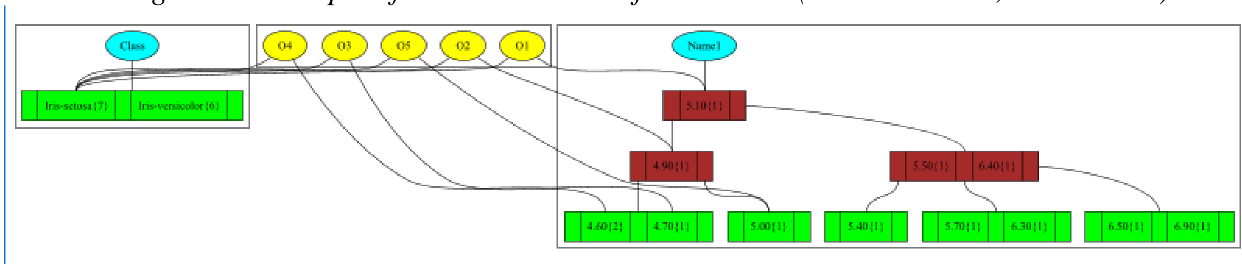
AVB tree is a B-tree (self-balancing tree) which aggregates the same (duplicated) values and counts them (the node stores not only the value, but also the number of occurrences of this value, so in the case of this value deletion, the node remains, only the count number of this value is decreased).

In Figure 1, the nodes O1-O4 represent objects and the nodes Name1 and Name2 represent the roots of two AVB trees (there are only 2 attributes in the observation vector). As it can be seen, each object node is connected to all its attributes in AVB trees. The application of AVB trees to store attributes instead of lists makes the method to operate faster (Cormen et al., 2009, Horzyk, 2017) because attributes of the same value are not repeated in the trees (the same node in the tree would be connected to more than 1 object) and the trees are self-balancing which optimizes the access to the attributes.

AGDS relations between nodes in AVB trees include measures of similarity between the nodes. Direct connections exist only between a node and two nodes closest in value. If for example,

to the AVB tree one added the node with a value 5, a direct connection would be created between this new node and its two closest neighbors, which could be the node with a value 4.9 and another node with a value of 5.1.

Figure 1. A sample of AGDS structures for Iris data (5 observations, 2 attributes)



AGDS training is performed in the following way. Every observation (object) is fed to the model separately. The algorithms takes the object's attributes vector and each attribute (mostly numbers, values) is added to the appropriate AVB tree (for each attribute there is a separate AVB tree). Some objects (observations) may have missing values for some attributes, but it does not disturb the algorithm – if some attribute value is missing, it is not added to the appropriate AVB tree (a node is not created and the object representing this observation is not connected to any node attribute in this particular tree).

For instance, if the AGDS structure trains on bankruptcy data, the attributes vector for a particular company may include the ROA (the return on assets ratio), liquidity ratio, and gearing ratio values for the year prior to the insolvency petition. If for a particular company the value of the ROA ratio is missing, it won't be added to the appropriate AVB tree, but the liquidity ratio, the gearing and the classification data (information that it is a bankrupt company or a healthy company) would be added to their AVB trees (one AVB tree would keep the values of ROA ratio for all trained companies, another AVB tree would keep the values for liquidity ratios of all trained companies, another AVB tree would store the values of gearing ratio and finally, the last AVB tree would store class (classification) information (whether a particular company went bankrupt or not). The new company, which was added to the AGDS would be represented with a new object node, let us assume, with the object node number 5. The object node 5 (O5) would be connected to the attribute nodes in the AVB trees, which hold the values characterizing this company (the attribute node with the appropriate value of ROA, the attribute node with the appropriate value of the liquidity value, the appropriate attribute node with the value of the gearing ratio and finally, the appropriate classification node – bankrupt or active) (compare with Figure 1).

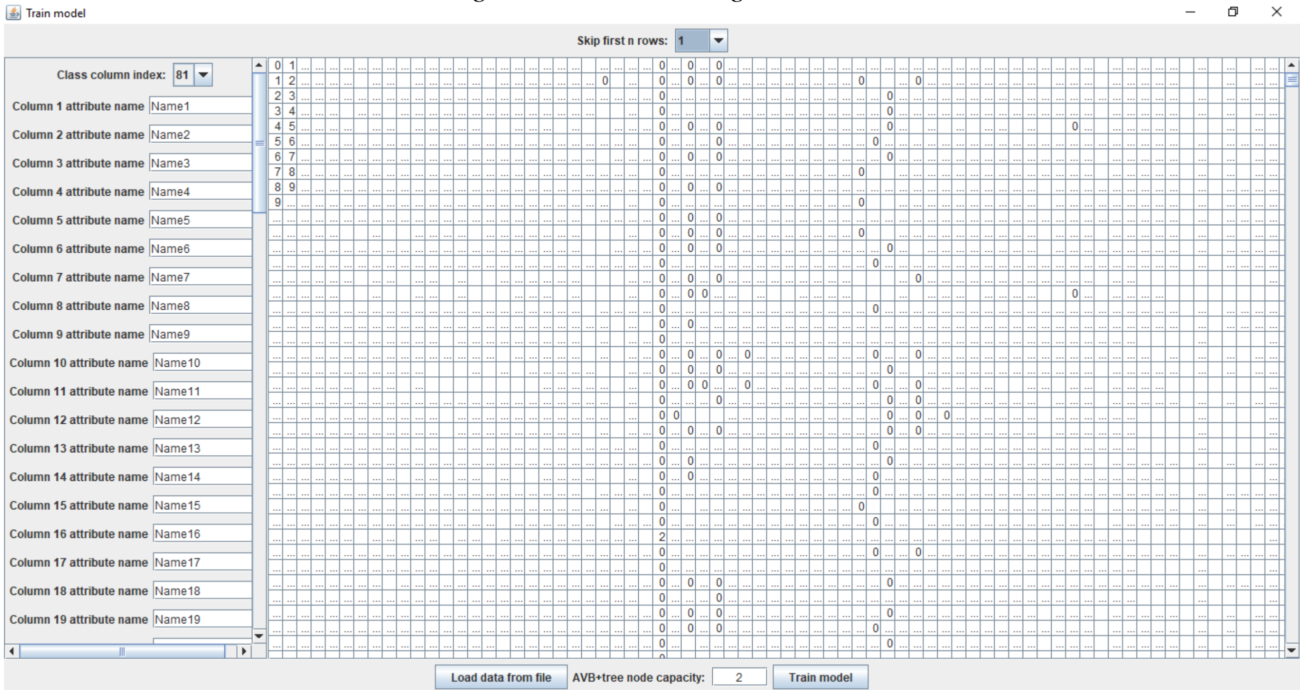
After the training is completed, one can use the AGDS structure to assess the insolvency risk for new data (other companies) – in other words, to classify a new company whether it is going bankrupt or not based on the data which was already fed to the model. One takes the vector describing the values of attributes for this new company and the AGDS returns the information which previously trained companies are the most similar to the analyzed company and whether the most similar companies went bankrupt or not.

In particular, for each value from the attributes vector the method finds 2 the most similar values in the appropriate AVB tree and these most similar values (one value should be higher or equal to the analyzed value, another should be lower or equal to the analyzed value) allow activation of the object (previously trained observation) which these attributes belonged to. Each AVB tree search may result with activation of different objects, but these activation signals are accumulated and the algorithm returns the object which was activated the most. For example, the ROA value of the analyzed company may have activated object 1 and object 2 nodes, the liquidity ratio value could have activated objects 2 and 4, the gearing ratio value could have activated objects 1 and 2. There is no value for bankrupt/healthy attribute because we want the AGDS to predict this attribute. The

mostly activated object is object 2, because it was activated 3 times. So the bankruptcy status for the analyzed company would be learned from the object 2 bankruptcy status.

The implementation of the described structure was written in java in the Intellij Idea programming environment. The implementation of the AVB trees was done manually, without using any ready libraries. For graphical representation of the trained structure we used the Graphviz library. Figure 2 shows data training module of the program. Data prediction module looks similar, just in the last column the program displays predicted classification of companies.

Figure 2. Data training module



4. LITERATURE SURVEY

Classical bankruptcy prediction approach in finance is based on linear discriminant analysis and logistic function. The first bankruptcy prediction model in history developed by R. Altman was called Z-Score and it is described in the publication from 1968 (Altman 1968). It uses the LDA approach and despite its age, it is still used by the practitioners.

LDA and logit functions (LOGIT) have many advantages and many disadvantages. They are relatively simple in application, they are also relatively simple in estimation, their mathematical representation is simple and easy to understand, they are even relatively resistant to data not fulfilling the model's assumptions such as normal distribution of values or the adequate number of observations. As to their disadvantages, LDA does not deal well with non-linear dependencies, fails if the discriminant information can be found in variance, not in the mean, and there are also problems with determination when the model is overfitted and with highly unbalanced data. Logit (logistic) function based models are susceptible to outliers, require uncorrelated observations (there cannot be multiple observations of the same objects, which means that at least theoretically it cannot be used for matched pairs like two matched patients in drug trials – one taking the drug and the other taking placebo), can appear to have more predictive power as a result of a sampling bias.

Modern approaches to bankruptcy prediction often employ machine learning algorithms. Popular machine learning methods include: decision trees based random forest technique, decision trees based gradient boosting technique, support vector machines, neural networks with various activation functions, Naïve Bayes models.

In order to explain random forest and gradient boosting techniques one has to begin with an explanation of what are decision trees. A decision tree represents decision making process where

decision nodes are connected by branches. Decision trees can be used for problems with categorical outcomes. A decision tree is composed of decision nodes that implement test function $f_m(x)$ with discrete outcomes labelling the branches. At each node, data is being tested and sent to appropriate branch. Decision process starts at the root and is repeated until a leaf node is reached, which means that analyzed value was classified to one of the result sets. Learning process roughly resembles the following algorithm (Ghatak, 2017, p. 145):

1. *Begin at a trunk of an empty tree*
2. *Select feature to split the data (the one which gives the smallest error)*
3. *For each split, consider stopping conditions:*
   (a) *Is the number of observations smaller than the minimum specified – make prediction and stop,*
   (b) *If all the data points belong to a specific label – stop,*
   (c) *If there are no features to split, stop,*
   (d) *If it reaches the maximum specified tree depth, stop.*
4. *If none of the stopping conditions are reached, go to step 2 (recurse).*

The accuracy of a single decision tree can be quite impressive, but usually one can achieve a higher classification accuracy with the application of random forest technique or gradient boosted trees. Random forest algorithm uses decision trees. In particular, decision trees are applied to several bootstrap samples of the training data (Suthaharan, 2016, p. 167). At the beginning of the algorithm, we select instances from the training data. At least 63% of the training data has to be selected every time. In this way, a subsample is created,and we will create such subsamples many times. Instances (observations) can be repeated in a subsample, because selection is with replacement. Observations that were not selected are called out-of-bag observations (Lewis, 2017, p. 254) and are used to estimate the error rate (or out-of-bag error rate). For each sub-sample one generates a decision tree. Each tree is different. Each tree is fully grown without pruning. The final predicted class of observationis based on the majority vote from all created decision trees or via weighted average for regression. Not always, but quite often such a majority voting based on multiple subsample decision trees give better efficiency than one big decision tree based on the entire sample. Random forest (RF), similarly to decision trees, is very easy to build and run, "missing values are automatically handled as are continuous and categorical target variables" (Lewis, 2017, p. 356). Overfitting is rarely a problem because using many trees generates an unbiased estimate of generalization error. Error rate usually is very accurate – as long as there are enough of decision trees created.

The second technique based on decision trees is called (gradient) boosted decision trees (GB). Gradient boosted regression trees (alternative name: gradient boosting machines) uses decision trees but makes them a more powerful method. *Gradient boosting builds decision trees in a serial manner, each new tree tries to correct the mistakes of the previous one* (Mueller and Guido, 2016, p. 90). The algorithm uses pre-pruning, usually trees are small and shallow. The method introduces so called 'weak learners' which represent simple models (in this case, shallow decision trees). Each tree can produce good projections only for a small part of data, so the more trees are added, the better the models become. Gradient boosting extensively uses learning rate of the model to see how much each new tree is correcting mistakes of the previous trees.

Support vector machines (SVM) is the third method which is going to be used in the paper as the benchmark for the AGDS structure. Similarly to RF and GB, SVM also does not make any assumptions concerning the distribution of the dependent variable. Generally speaking, the idea of the SVM is based on dividing the hyperspace which includes points representing objects (observations) in such a way, that each class is separated from other classes. In other words, we estimate a linear hyperplane that separates the cases with present "sick" and "healthy" companies. The final result looks similar to classical regression or Bayesian model, but the method of estimating the model is different.

The fourth method used as a benchmark for the AGDS structures is Naïve Bayes approach. Naïve Bayes (NB) models assume that classification of a certain object (in our case – bankruptcy

class or healthy companies' class) can be calculated as the product of conditional probabilities of attributes describing this observation. We assume that attributes (features of the object) are conditionally independent on each other.

The fifth popular technique are neural networks. Deep neural network (NN) consists of an input layer, an output layer, and a number of hidden layers sandwiched between the two (Lewis, 2016, p. 32). Multiple hidden layers, on one hand, make learning of such a network long and requires a lot of computational power, but on the other side, it allows creation of nonlinear models. Deep NNs can approximate extremely complicated decision functions. As Lewis explains (2016, p. 33) the easiest way to explain NN is that it is a chain of multiple regressions where some regressions output is used as an input to another regression. With the adequately big number of such regressions and long enough chain of them (being interconnected), NN can create a very good representation of the complicated decision making system and return a quite adequate probability to which class a certain instance (observation) belongs. Another explanation is that each hidden layer is similar to a stack log –linear models which estimate the probability that some observation belongs to a particular class. NN is a general name of many algorithms which are combined by the fact that they have many hidden layers. According to Wiley (2016, p. 6), exact algorithms worth mentioning include: DBNs – Deep Belief Networks which are very similar to RBM (Restricted Boltzmann Machines), RNNs – Recurrent Neural Networks and CNNs – Convolutional Neural Networks.

The table in Appendix 1 shows the validation accuracy of bankruptcy prediction methods discussed above taken from the publications based of foreign data (not Polish companies). As it can be seen from its summary presented in the Table 1, average testing accuracy for the linear discriminant analysis was 76,1%, for the logistic function 81,32%, for a single decision tree 75,5%, for a deep neural network 76,96%, for a naïve Bayes model 95,25% (but this result is based on only 2 publications), for the SVM: 80,15%, for Boosted Decision Trees it was 82,93% and finally, for the Random Forest the accuracy was 93,12%.

Table 1. Summary of ML algorithms accuracy in bankruptcy prediction

Technique	Base classifiers	Accuracy (%)	No of publications
Single model	DA	76,1	17
Single model	DT	75,5	18
Single model	Logit	81,32	8
Single model	NN	76,96	31
Single model	Naive Bayes	95,25	2
Single model	SVM	80,15	23
Boosting	DT	82,93	8
Random Forest	DT	93,12	3

Source: Appendix 1

The Table 2 shows the results of previous papers based on Polish companies' data. As it can be seen in Table 2, the accuracy of linear discriminant models was between 86,11% and 96,26%, the accuracy of logit models was between 83,33% and 92,59% and for boosted decision trees it was a range between 67,1% and 92,9%. Deep neural network's efficiency was between 95,83 and 97,67%.

This would suggest that the most effective models were created on the basis of deep neural networks and discriminant analysis and the worst range of accuracies was found for boosted decision trees. This is not very promising, however, with the exception of Grzybowska and Karwanski paper (2015) all other papers were not based on a representative sample of Polish companies. Also for non-Polish research, only Jardin (2016) and Min and Jeong (2009) used a representative sample of bankrupt firms.

Table 2. Previous Polish research on accuracy of linear discriminant analysis (DA), Logit and Boosted Decision Trees (cross-validation average accuracy in [%])

Studies	Base classifiers	Accuracy (%)
Pociecha et al (2014)	DA	86,11
Pociecha et al (2014)	DA	89,58
Korol (2010)	DA	96,29
Pociecha et al (2014)	Logit	83,33
Pociecha et al (2014)	Logit	88,89
Korol (2010)	Logit	92,59
Grzybowska and Karwanski (2015)	AdaBoost (DT)	92,9
Pawelek and Grochowina (2017)	Boosting (DT)	67,2
Pawelek and Grochowina (2017)	Boosting (DT)	77,7
Korol and Prusak (2015)	NN	97,67
Pociecha et al. (2014)	NN	95,83

For the reasons explained earlier, we did not find any previous publications concerning the accuracy of the AGDS structures in bankruptcy prediction (because this technique is relatively new).

5. RESEARCH METHOD

As it was explained before, the purpose of the paper was to compare the accuracy of basic bankruptcy prediction models and AGDS structures using a representative sample of Polish companies. Data was retrieved from the Orbis database and included balance sheet (statement of financial position) and income statement elements as well as financial ratios (presented in the Table 4). Financial statements used for the research were in so called Orbis global format (elements which were available are presented in the Appendix 2).

Data was tested whether the sum of assets was equal to the sum of equity and liabilities and we removed any suspicious or error records. For all variables we calculated cross-correlations to avoid multicollinearity problems in logit and DA models.

Orbis database contains the information about legal status of each company and this is how we determined which company was bankrupt. As a status change dates we assumed the year when the company had negative equity for the first time, we assumed that insolvency application must have been filed one year earlier and that the model should be able to want about it one year later. In total, we collected 1415 useful records for bankrupt companies and 1415 records of active companies. Data covered various types of economic activity. The sample was divided into 2 sets. The first set (training set) included companies which went bankrupt in years 2008–2013 (and selected similar active companies) and the second set (validation set) included companies which went bankrupt in years 2014–2017 (and similar active companies). Both sets were almost balanced, but we added some extra random active companies for better training.

Training of models used all available information, except for LOGIT and LDA models which only used financial ratios which were pre-selected from the set to avoid collinearity (we found the combination of variables which resulted with the most accurate model).

Table 4. Financial ratios used in training of the models

Symbol	Full Name	Definition
Profitability ratios		
RSHF (roeplbeforetax)	ROE using P/L before tax (%)	(Profit before tax / Shareholders funds) * 100
RCEM (roceplbeforetax)	ROCE using P/L before tax (%)	(Profit before tax + Interest paid) / (Shareholders funds + Non current liabilities) * 100
RTAS (roaplbeforetax)	ROA using P/L before tax (%)	(Profit before tax / Total assets) * 100
ROE (roenetincome)	ROE using Net income (%)	(Net income / Shareholder funds) * 100
ROCE (rocenetincome)	ROCE using Net income (%)	(Net income + Interest paid) / (Shareholder funds + Non current liabilities) * 100
ROA (roanetincome)	ROA using Net income (%)	(Net income / Total Assets) * 100
PRMA (protifmargin)	Profit margin (%)	(Profit before tax / Operating revenue) * 100
GRMA (grossmargin)	Gross margin (%)	(Gross profit / Operating revenue) * 100
ETMA (ebitdamargin)	EBITDA margin (%)	(EBITDA / Operating revenue) * 100
EBMA (ebitmargin)	EBIT margin (%)	(EBIT / Operating revenue) * 100
CFOP	Cash flow / Operating revenue (%)	(Cash flow / Operating revenue) * 100
EVET	Enterprise value / EBITDA (x)	Enterprise value / (Operating profit (loss) + Depreciation)
MKCF	Market cap / Cash flow from operations (x)	Annual Market Cap / 315514 (non-US comps) or OTLO (US comps)
Operational ratios		
NAT (netassetsturn)	Net assets turnover (x)	Operating revenue / (Shareholders funds + Non current liabilities)
IC (intcover)	Interest cover (x)	Operating profit / Interest paid
STOT (stockturn)	Stock turnover (x)	Operating revenue / Stocks
COLL (collperdays)	Collection period (days)	(Debtors / Operating revenue) * 360
CRPE (credperdays)	Credit period (days)	(Creditors / Operating revenue) * 360
EXOP	Export revenue / Operating revenue (%)	(Exports / Operating revenue) * 100
RDOP	R&D expenses / Operating revenue (%)	(Research & development / Operating revenue) * 100
Structure ratios		
CURR (curratio)	Current ratio (x)	Current assets / Current liabilities
LIQR (liqratio)	Liquidity ratio (x)	(Current assets - Stocks) / Current liabilities
SHLQ	Shareholders liquidity ratio (x)	Shareholders funds / Non current liabilities
SOLR (solvratioassbased)	Solvency ratio (Asset based) (%)	(Shareholders funds / Total assets) * 100
SOLL (solvratioliabbased)	Solvency ratio (Liability based) (%)	(Shareholders funds / (Non current liabilities + Current liabilities)) * 100

Symbol	Full Name	Definition
GEAR (gearing)	Gearing (%)	((Non current liabilities + Loans) / Shareholders funds) * 100
Per employee ratios		
PPE	Profit per employee (th)	Profit before tax / Employees
TPE	Operating revenue per Employee (th)	Operating revenue / Employees
SCT (emplcost_rev)	Costs of employees / Operating revenue (%)	(Cost of employees / Operating revenue) * 100
ACE	Average cost of employee (th)	Cost of employees / Employees
SFPE	Shareholders funds per employee (th)	Shareholders funds / Employees
WCPE	Working capital per employee (th)	Working capital / Employees
TAPE	Total assets per employee (th)	Total assets / Employees

Source: Orbis, [@:] https://orbis.bvdinfo.com/version-20171214/home.serv?product=OrbisNeo, download date: 12.10.2017.

As for the external data, we used NACE classification and consolidation code as additional variables used in the training of the models.

After checking and processing, data was normalized and we applied one-hot encoding to discrete data. We used Python library called skleran and Anaconda Jupyter IDE. Data sample was divided into 10 parts and for each iteration we used 9 parts for training and 1 part for testing (cross validation).

The following models were trained: linear discriminant analysis, logit model, random forest, gradient boosted decision trees, support vector machines, naïve Bayes and AGDS.

6. RESULTS AND DISCUSSION

The Table 5 shows the average accuracy of cross validation of trained models. AGDS classification was accurate in 64,1% of the validation data. This results can be compared to the accuracy of 99,11% for gradient boosting model and the accuracy of random forest model. Even the discriminant analysis model and the logit model with accuracies (adequately) of 87,1% and 86,31% performed better than AGDS.

Table 5. Training and validation accuracy of trained models

training subset	Logit	DA	SVM	RF	GB	NN	NB	AGDS
1	88,84	87,1	70,51	99,52	99,52	83,83	72,53	66,84
2	87,11	87,37	72,41	99,41	99,52	83,35	70,75	65,29
3	88,23	87,38	69,56	99,88	99,76	85,97	74,44	64,12
4	88,43	86,96	68,37	99,76	99,88	83,47	74,55	68,82
5	88,52	87,52	69,17	99,17	99,64	80,6	72,98	69,72
6	87,12	87,51	70,95	98,93	98,93	81,55	71,31	65,41
7	88,91	87,54	69,17	99,17	99,76	84,52	73,69	64,01
8	88,31	86,22	68,57	99,76	99,76	84,64	75,36	63,57
9	88,24	87,38	67,5	99,05	99,05	82,26	71,79	69,43
10	88,11	87,34	72,86	99,76	99,88	87,14	72,26	70,13
average	**88,18**	**87,23**	**69,91**	**99,44**	**99,57**	**83,73**	**72,97**	**66,73**
validation sample	**87,1**	**86,31**	**69,54**	**98,91**	**99,11**	**83,35**	**72,6**	**64,1**

7. FINAL CONCLUSIONS

The purpose of the research presented in this paper was to verify the hypothesis that the AGDS structure, when it comes to predicting the bankruptcy of companies, on its own beats the logit, discriminant analysis, random forest and gradient boosted decision trees as well as support vector machines and Naïve Bayes methods.

As it was shown in the Table 5, these hypotheses must be rejected, because all methods performed better than the AGDS method. Presented validation results do not diminish the importance of the AGDS structure, just show that the AGDS should be used as an extension of other methods, not on its own. Secondly, tests were based on only 1 sample of financial data, and definitely, one should use various datasets in the future continuation of this research.

Another conclusion from the achieved results is that it is worth testing the AGDS structure as an element of a more sophisticated Artificial Intelligence structures, that is (as suggested by Horzyk, 2018) together with the SOM map and a combination of several deep neural networks. AGDS should improve efficiency of such a network by recognizing the cases which are very similar to the trained observations. Preliminary tests run on Iris data and Wine data (available in the global AI repository) show that AGDS structure added to the neural networks can result with the accuracy of the structure close to 100% of correctly classified cases (the code was written by the author in Python without any external libraries).

BIBLIOGRAPHY

Aktan S. (2011). Application of machine learning algorithms for business failure prediction, Investment Management and Financial Innovations, Volume 8, Issue 2, pg. 52–65.

Alfaro, E. & Garcia, N., Games, M., Elizondo, D. (2008). Bankruptcy forecasting: an empirical comparison of Adaboost and neural networks. Decision Support Systems (45), pg. 110–122.

Alpaydin E. (2016). Introduction to Machine Learning, MIT Press, Cambridge.

Altinirmak S. & Karamasa C. (2016). Comparison of Machine Learning Techniques for Analyzing Banks' Financial Distress, Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi Cilt: 19 - Sayı: 36, Aralık, pg. 291–303.

Altman E. (1973). Predicting Railogitoad Bankruptcies in America, Bell Journal of Economics and Management Service, Spring, pg. 184–211.

Altman, E. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy, Journal of Finance, September, pg. 589–609.

Anandarajan, M. & Lee, P., Anandarajan, A. (2001). Bankruptcy prediction of financially stressed firms: An examination of the predictive accuracy of artificial neural networks. International Journal of Intelligent Systems in Accounting (10), pg. 69–81.

Arieshanti I. & Purwananto Y. (2013), Ramadhani A., Nuha M.U., Ulinnuha N., Comparative Study of Bankruptcy Prediction Models, Telkomnika, vol. 11, number 3, September, pg. 591–596.

Barboza, F. & Kimura & H., Altman, E. (2017). Machine learning models and bankruptcy prediction. Expert Systems With Applications (83), pg. 405–417.

Blanco-Oliver A. & Irimia-Dieguez A. & Oliver-Alfonso M., Wilson N. (2015), Improving Bankruptcy Prediction in Micro-Entities by Using Nonlinear Effects and Non-Financial Variables, Finance a úvěr-Czech Journal of Economics and Finance, 65, no. 2, pg. 144–166.

Chaudhuri A. & De K. (2011). Fuzzy Support Vector Machine for bankruptcy prediction, Applied Soft Computing, volume 11, issue 2, pg. 2472–2486.

Cho, S. & Hong, H. & Ha, B. (2010). A hybrid approach based on the combination of variable selection using decision trees and case-based reasoning using the Mahalanobis distance: For bankruptcy prediction. Expert Systems with Applications (37), pg. 3482–3488.

Cho, S. & Kim, J. & Bae, J.K. (2009). An integrative model with subject weight based on neural network learning for bankruptcy prediction. Expert Systems with Applications (10), pg. 403–410.

Chuang, C. L. (2013). Application of hybrid case-based reasoning for enhanced performance in bankruptcy prediction. Information Sciences, 236, pg. 174–185.

Cormen T. & Leiserson Ch. & Riverst T. (2009). Stein C., Introduction to algorithms, 3nd ed., MIT Press.

Ecer F. (2013), Comparing the bank failure prediction performance of neural networks and support vector machines: the Turkish case, Ekonomska Istraživanja-Economic Research, Volume 26(3), pg. 81–98.

Fedorova, E. & Gilenko, E. & Dovzhenko, S. (2013). Bankruptcy prediction for Russian companies: application of combined classifiers. Expert Systems with Applications (40), pg. 7285–7293.

Freund, Y. & Schapire, R. E. (1996). Experiments with a new boosting algorithm, Machine Learning: Proceedings of the Thirteenth International Conference, pg. 148–156.

Friedman J. & Hastie T., & Tibshirani R. (2000). Additive logistic regression: a statistical view of boosting. Ann. Stat. 28, pg. 337–407 10.1214/aos/1016218222.

Friedman J. (2001). Greedy boosting approximation: a gradient boosting machine. Ann. Stat. 29, 1189–1232 10.1214/aos/1013203451.

Geng, R. & Bose, I., & Chen, X. (2015). Prediction of financial distress: an empirical study of listed Chinese companies using data mining. European Journal of Operational Research, 241, pg. 236–247,

Ghatak A. (2017), Machine learning with R, Springer, New York.

Ghodselahi, A. & Amirmadhi, A. (2011). Application of artificial intelligence techniques for credit risk evaluation. International Journal of Modelling and Optimization 1, pg. 243–249.

Grzybowska U. & Karwański M. (2015), Szacowanie parametrów ryzyka kredytowego przy użyciu rodzin klasyfikatorów, Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, Katowice, nr 248, pg. 107–120.

Grzybowska U. & Karwański M. (2015).: Szacowanie parametrów ryzyka kredytowego przy użyciu rodzin klasy-fikatorów. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach 248, pg. 107–120.

Heo, J. & Yang, J. Y. (2014), AdaBoost based bankruptcy forecasting of Korean construction companies. Applied Soft Computing, 24, pg. 494–499 .

Heo, J. & Yang, J.Y. (2014). Predicting restaurant financial distress using decision tree and ada-boosted decision tree models. Economic Modelling 36m pg. 354–362.

Horzyk A. & Starzyk J.A. (2018). Multi-Class and Multi-Label Classification Using Associative Pulsing Neural Networks, In: 2018 IEEE World Congress on Computational Intelligence (WCCI 2018), 2018 International Joint Conference on Neural Networks (IJCNN 2018), IEEE Xplore, pg. 427–434.

Horzyk A. (2013). Artificial Associative Systems and Associative Artificial Intelligence, Academic Publishing House EXIT, Warsaw.

Horzyk A. (2017). Deep associative semantic neural graphs for knowledge representation and fast data exploration, [in:] Proc. of KEOD, SCITEPRESS Digital Library, pg. 67–79.

Horzyk A. (2018). Associative Graph Data Structures with an Efficient Access via AVB-trees, [in:] 11th International Conference on Human System Interaction (HSI), Gdansk, 2018, pg. 169–175, doi: 10.1109/HSI.2018.8430973,
URL: http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=8430973&isnumber=8430754

Hu, Y.C. & Tseng, F.M. (2007). Functional-link net with fuzzy integral for bankruptcy prediction. Neurocomputing (3), pg. 2959–2968.

Huang, J. & Wang, H. & Kochenberger, G. (2017). Distressed Chinese firm prediction with discretized data. Management Decision 55, pg. 786–807.

Jabeur, S. & Fahmi, Y. (2017). Forecasting financial distress for French firms: a comparative study. Empirical Economics (3), pg. 1–14.

Jardin P., (2009). Bankruptcy prediction models: How to choose the most relevant variables?, Munich Personal RePEc Archive, MPRA Paper No. 44380, posted 15 February 2013,

[@:]https://mpra.ub.uni-muenchen.de/44380/1/MPRA_paper_44380.pdf, download date: 29.12.2017.

Jardin, P. (2016). A two-stage classification technique for bankruptcy prediction. European Journal of Operational Research (254), pg. 236–252.

Johnson R. & Zhang T. (2012). Learning Nonlinear Functions Using Regularized Greedy Forest. Technical Report. arXiv:1109.0887. 10.2172/1052139.

Kasgari A.A.& Salehnezhad S.H. & Ebadi F. (2013). The Bankruptcy Prediction by Neural Networks and Logistic Regression, International Journal of Academic Research in Accounting, Finance and Management Sciences, Vol. 3, No. 4, October, pg. 146–152.

Kim M-J., Kang D.-K. (2012), Classifiers selection in ensembles using genetic algorithms for bankruptcy prediction, Expert Systems with Applications 39, pg. 9308–9314.

Kim, M.J. & Kang, D.K. (2010). Ensemble with neural networks for bankruptcy prediction. Expert Systems with Applications, 37 (4), pg. 3373–3379.

Kim, S. Y. & Upneja, A. (2014). Predicting restaurant financial distress using decision tree and adaboosted decision tree models. Economic Modelling, 36 , pg. 354–362.

Ko L.-J. & Blocher E. & Lin P. (2001). Prediction of Corporate Financial Distress: An Application of the Composite Rule Induction System, The International Journal of Digital Accounting Research, Vol. 1, No. 1, pg. 69–85.

Korol T., Prusak B. (2014), Upadłość przedsiębiorstw, CeDeWu, Warszawa.

Korol, T. (2010). Systemy ostrzegania przedsiebiorstw przed ryzykiem upadlosci. Oficyna Wolters Kluwer Business.

Lewis N.D. (2017). Machine Learning Made Easy With R: Intuitive Step by Step Blueprint for Beginners, CreateSpace, New York.

Li, H. & Sun, J. (2009). Majority voting combination of multiple case-based reasoning for financial distress prediction. Expert Systems with Applications, 36, pg. 4363–4373,

Li, H. & Sun, J. (2010). Business failure prediction using hybrid2 case-based reasoning. Computers and Operations Research (37), pg. 137–151.

Li, H., Lee, Y. C., Zhou, Y. C., & Sun, J. (2011). The random subspace binary logit (RSBL) model for bankruptcy prediction. Knowledge-Based Systems, 24, pg. 1380–1388.

Liao, J.J. & Shih, C.H., Chen, T.F., Hsu, M.F. (2014). An ensemble-based model for two-class imbalanced financial problem. Economic Modelling (37), pg. 175–183.

Marques, A. I. & Garcia, V. & Sanchez, J. S. (2012). Exploring the behavior of base classifiers in credit scoring ensembles. Expert Systems with Applications, 39, pg. 10244–10250.

Min J. & Jeong C. (2009), A binary classification method for bankruptcy prediction, Expert Systems with Applications 36, p. 5256–5263.

Min, J. & Lee, Y. (2005). Bankruptcy prediction using support vector machine with optimal choice of kernel function parameters. Expert Systems with Applications 28, pg. 603 – 614.

Min, J. & Lee, Y. (2009). A binary classification method for bankruptcy prediction. Expert Systems with Applications (36), pg. 5256–5263.

Mirzaei M. & Ramakrishnan S., Bekri M. (2016), Corporate Default Prediction with Industry Effects: Evidence from Emerging Markets, International Journal of Economics and Financial Issues, volume 6, issue 53, pg. 161–169.

Mueller A. & Guido S. (2016). Introduction to Machine Learning with Python for Data Scientists, O'Reilly Media, New York.

Nagaraj, K. & Sridhar, A. (2015). A predictive system for detection of bankruptcy using ma-chine learning techniques. International Journal of Data Mining & Knowledge Management Process (IJDKP) 5, pg. 29–40.

Nanni L.& Lumini A. (2009), An experimental comparison of ensemble of classifiers for bankruptcy prediction and credit scoring, Expert Systems with Applications 36, p. 3028–3033.

Pawelek, B. & Grochowina, D. (2017). Podejscie wielomodelowe w prognozowaniu zagrozenia przedsiebiorstw upadloscia w Polsce. Prace Naukowe Uniwersytetu Ekonomicznego we Wroclawiu, pg. 171–17.

Pena, T. & Martinez, S., (2009). Bankruptcy prediction: A comparison of some statistical and machine learning techniques. SSRN's eLibrary 18.

Pociecha, J. & Pawelek, B. & Baryla, B. (2014). Statystyczne metody prognozowania bankructwa w zmieniajacej sie koniunkturze gospodarczej. Wydawnictwo UEK.

Ramakrishnan S. & Mirzaei M., Naveed M. (2015), Corporate Bankruptcy Prediction: A Case of Emerging Economies, International Journal of Sciences Basic and Applied Research, Volume 19, No 1, pp 177–187.

Sun, J. & Jia, M. Y. & Li, H. (2011). AdaBoost ensemble for financial distress prediction: an empirical comparison with data from Chinese listed companies. Expert Systems with Applications, 38, pg. 9305–9312.

Sun, J. & Jia, M. Y. & Li, H. (2011). AdaBoost ensemble for financial distress prediction: an empirical comparison with data from Chinese listed companies. Expert Systems with Applications, 38, pg. 9305–9312.

Sun, J. & Li, H. (2009). Financial distress prediction based on serial combination of multiple classifiers. Expert Systems with Applications 18, pg. 8659–8666.

Sun, J., & Li, H. (2012). Financial distress prediction using support vector machines: ensemble vs. individual. Applied Soft Computing, 12, pg. 2254–2265.

Suthaharan S. (2016), Machine Learning Models and Algorithms for Big Data Classification: Thinking with Examples for Effective Learning, Springer, New York.

Tsai C.-F. & Cheng K.-C. (2012). Simple instance selection for bankruptcy prediction, Knowledge-Based Systems 27, pg. 333–342.

Tsai, C. F. (2014). Combining cluster analysis with classifier ensembles to predict financial distress. Information Fusion, 16, pg. 46–58,

Tseng, F. & Hu, Y. (2010). Comparing four bankruptcy prediction models: Logit, quadratic interval logit, neural and fuzzy neural networks. Expert Systems with Applications 37, pg. 1846–1853.

West, D. & Dellana, S. & Qian, J. (2005). Neural network ensemble strategies for financial decision application. Computers and Operations Research, 32, 25432559.

Wiley J. (2016). R Deep learning essentials, Packt Publishing, New York.

Witten I. & Eibe F. (2005). Practical Machine Learning Tools and Techniques, Morgan Kaufman, Amsterdam.

Xiao, Z. & Yang, X. & Pang, Y., & Dang, X. (2012). The prediction for listed companies' financial distress by using multiple prediction methods with rough set and Dempster-Shafer evidence theory. Knowledge-Based Systems, 26, pg. 196–206.

Ząbkowski T. & Szczęsny W. (2009). Klasyfikacja ryzyka niewypłacalności klientów w telekomunikacji, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, nr 47, pg. 123–131.

Appendix 1

Table 6. Accuracy of previous researches concerning the accuracy of ML in bankruptcy prediction

Studies	Techniques	Base classifiers	Accuracy(%)
Aktan (2011)	Single Model	Naive Bayes	92,20
Aktan (2011)	Single Model	NN	90,00
Aktan (2011)	Single Model	SVM	92,70
Aktan (2011)	Single Model	DT	87,20
Alfaro, Garcia, Games, and Elizondo (2008)	Single Model	NN	87.29
Alfaro, Garcia, Games, and Elizondo (2008)	Single Model	DA	79.66
Alfaro, Garcia, Games, and Elizondo (2008)	Single Model	DT	87.29
Alfaro, Garcia, Games, and Elizondo (2008)	Adaboost	DT	91.10
Altinirmak, Karamasa (2016)	Single Model	SVM	91,90
Altinirmak, Karamasa (2016)	Single Model	NN	87,40
Anandarajan Lee, Anandarajan (2001)	Single Model	NN	81,92
Anandarajan Lee, Anandarajan (2001)	Single Model	DA	52,25
Arieshanti et at (2013)	Single Model	SVM	70,42
Arieshanti et at (2013)	Single Model	NN	71,00
Barboza, Kimura, Altman (2016)	Single Model	DA	52,18
Barboza, Kimura, Altman (2016)	Single Model	LOGIT	76,29
Barboza, Kimura, Altman (2016)	Single Model	NN	72,98
Barboza, Kimura, Altman (2016)	Single Model	SVM	71,52
Barboza, Kimura, Altman (2016)	AdaBoost	NN	86,65
Barboza, Kimura, Altman (2016)	Bagging	NN	85,67
Barboza, Kimura, Altman (2016)	Random Forest	DT	87,06
Blanco-Oliver et al (2015)	Single Model	LOGIT	77,00
Blanco-Oliver et al (2015)	Single Model	NN	82,70
Chaudhuri, De (2011)	Single Model	LOGIT	70,71
Chaudhuri, De (2011)	Single Model	NN	71,72
Chaudhuri, De (2011)	Single Model	SVM	74,75
Cho, Kim, and Bae (2009)	Single Model	DA	78,15
Cho, Kim, and Bae (2009)	Single Model	LOGIT	78,04
Cho, Kim, and Bae (2009)	Single Model	NN	78,01
Cho, Kim, and Bae (2009)	Single Model	DT	72,38
Cho, Kim, and Bae (2009)	Single Model	SVM	78,01
Cho, Kim, and Bae (2009)	DA+LOGIT+DT+NN		78.92
Cho, Hong, Ha(2010)	Single Model	NN	71,00
Cho, Hong, Ha(2010)	Single Model	DT	66,73
Cho, Hong, Ha(2010)	Single Model	LOGIT	70,58
Chuang (2013)	Single Model	LOGIT	85,30
Ecer (2013)	Single Model	NN	97,06
Ecer (2013)	Single Model	SVM	85,29
Fedorova, Gilenko, and Dovzhenko (2013)	Single Model	DA	82.00
Fedorova, Gilenko, and Dovzhenko (2013)	AdaBoost	NN	88.80
Geng, Bose, and Chen (2015)	Single Model	NN	78,80
Geng, Bose, and Chen (2015)	Single Model	DT	74,40
Geng, Bose, and Chen (2015)	Single Model	SVM	71,10
Geng, Bose, and Chen (2015)	NN+DT+SVM		78.40
Ghodselahi, Amirmadhi (2011)	Single Model	DA	65,91
Ghodselahi, Amirmadhi (2011)	Single Model	LOGIT	71,00
Ghodselahi, Amirmadhi (2011)	Single Model	DT	70,35
Ghodselahi, Amirmadhi (2011)	Single Model	RBF	68,50
Ghodselahi, Amirmadhi (2011)	Single Model	SVM	71,00
Ghodselahi, Amirmadhi (2011)	Single Model	NN	74,00
Ghodselahi, Amirmadhi (2011)	Boosting	DT	72,77
Ghodselahi, Amirmadhi (2011)	Boosting	NN	73,30
Ghodselahi, Amirmadhi (2011)	Boosting	SVM	76,30
Heo and Yang (2014)	Single Model	NN	77.08
Heo and Yang (2014)	Single Model	SVM	73.29

Studies	Techniques	Base classifiers	Accuracy(%)
Heo and Yang (2014)	Single Model	DT	73.10
Heo and Yang (2014)	AdaBoost	DT	78.52
Hu, Tseng (2007)	Single Model	DA	85,42
Hu, Tseng (2007)	Single Model	LOGIT	88,73
Hu, Tseng (2007)	Single Model	NN	81,78
Jardin (2016)	Single model	DA	80,05
Jardin (2016)	Single model	LOGIT	80,15
Jardin (2016)	Single model	NN	81,04
Jardin (2016)	Boosting	DA	82,64
Jardin (2016)	Boosting	LOGIT	82,54
Jardin (2016)	Boosting	NN	83,15
Kasgari, Salehnezhad, Ebadi (2013)	Single Model	NN	91
Kasgari, Salehnezhad, Ebadi (2013)	Single Model	LOGIT	89
Kim and Kang (2010)	Single Model	NN	71.02
Kim and Kang (2010)	AdaBoost	NN	75,97
Kim Kang (2012)	Single Model	DT	70,30
Kim Kang (2012)	Boosting	DT	76,00
Kim Kang (2012)	Single Model	NN	71,02
Kim Kang (2012)	Boosting	NN	73,10
Kim Kang (2012)	Boosting	NN	76,52
Kim Kang (2012)	Single Model	SVM	72,45
Kim and Upneja (2014)	Single Model	DT	97.00
Kim and Upneja (2014)	AdaBoost	DT	98.10
Ko Blocher Lin(2001)	Single Model	NN	94,72
Ko Blocher Lin(2001)	Single Model	LOGIT	89,74
Lee (2018)	Single Model	LOGIT	69,53
Lee (2018)	Single Model	NN	67,69
Lee (2018)	Single Model	DT	73,60
Li, Lee, Zhou, and Sun (2011)	Single Model	DA	82.82
Li, Lee, Zhou, and Sun (2011)	Single Model	LOGIT	78.70
Li and Sun (2009)	Single Model	DA	83,13
Li and Sun (2009)	Single Model	LOGIT	76,19
Li and Sun (2010)	Single Model	DA	88,09
Li and Sun (2010)	Single Model	LOGIT	87,33
Li and Sun (2011)	Single Model	DA	88,93
Li and Sun (2011)	Single Model	LOGIT	87,51
Liao, Shih, Chen, and Hsu (2014)	Single model	DA	92.44
Liao, Shih, Chen, and Hsu (2014)	Single model	LOGIT	91.47
Liao, Shih, Chen, and Hsu (2014)	Single model	DT	94.68
Liao, Shih, Chen, and Hsu (2014)	Random Forest	DT	94.91
Marques, Garcia, and Sanchez (2012)	Single Model	NN	72.92
Marques, Garcia, and Sanchez (2012)	Single Model	DT	68.75
Marques, Garcia, and Sanchez (2012)	Single Model	SVM	71.25
Marques, Garcia, and Sanchez (2012)	Single Model	LOGIT	72.92
Marques, Garcia, and Sanchez (2012)	AdaBoost	DT	75.42
Marques, Garcia, and Sanchez (2012)	Random Forest	LOGIT	94.20
Min, Lee (2005)	Single Model	SVM	88,01
Min, Lee (2005)	Single Model	NN	85,25
Min, Lee (2005)	Single Model	DA	78,81
Min, Lee (2005)	Single Model	LOGIT	79,87
Min J., Jeong C. (2009)	Single Model	DA	69,10
Min J., Jeong C. (2009)	Single Model	LOGIT	70,70
Min J., Jeong C. (2009)	Single Model	DT	76,80
Min J., Jeong C. (2009)	Single Model	NN	76,40
Mirzaei, Ramakrishnan, Bekri (2016)	Single Model	LOGIT	80,10
Mirzaei, Ramakrishnan, Bekri (2016)	Single Model	CART	81,80
Nagaraj, Sridhar (2015)	Single Model	LOGIT	97,20
Nagaraj, Sridhar (2015)	Single Model	Naive Bayes	98,30

Studies	Techniques	Base classifiers	Accuracy(%)
Nagaraj, Sridhar (2015)	Single Model	NN	98,60
Nagaraj, Sridhar (2015)	Single Model	SVM	99,60
Nagaraj, Sridhar (2015)	Random Forest	DT	97,40
Nanni, Lumini (2009)	Single Model	NN	82,95
Nanni, Lumini (2009)	Single Model	NN	69,22
Nanni, Lumini (2009)	Single Model	SVM	80,74
Pena, Martinez, Abudu (2009)	Single model	DA	86,60
Pena, Martinez, Abudu (2009)	Single model	LOGIT	83,90
Pena, Martinez, Abudu (2009)	Single model	SVM	82,30
Ramakrishnan, Mirzaei, Naveed (2015)	Single Model	LOGIT	69,12
Ramakrishnan, Mirzaei, Naveed (2015)	Single Model	NN	83,31
Ramakrishnan, Mirzaei, Naveed (2015)	Single Model	DT	74,79
Ramakrishnan, Mirzaei, Naveed (2015)	Single Model	SVM	84,79
Sun and Li (2009)	Single Model	DA	80,69
Sun and Li (2009)	Single Model	LOGIT	84,72
Sun and Li (2009)	Single Model	NN	82,50
Sun and Li (2009)	Single Model	DT	80,90
Sun and Li (2009)	Single Model	SVM	82,64
Sun, Jia, and Li (2011)	Single Model	DT	96.54
Sun, Jia, and Li (2011)	Single Model	SVM	96.06
Sun, Jia, and Li (2011)	Single Model	DT	96.54
Sun, Jia, and Li (2011)	Single Model	SVM	96.06
Sun, Jia, and Li (2011)	AdaBoost	DT	96.46
Sun and Li (2012)	Single Model	SVM	81,16
Tsai, Cheng (2012)	10% reduction of outliers	NN	73,90
Tsai, Cheng (2012)	10% reduction of outliers	DT	67,60
Tsai, Cheng (2012)	10% reduction of outliers	LOGIT	72,00
Tsai, Cheng (2012)	10% reduction of outliers	SVM	77,00
Tsai (2014)	Single Model	LOGIT	82,24
Tsai (2014)	Single Model	NN	85,48
Tsai (2014)	Single Model	DT	83,07
Tseng F.M., Hu Y.C. (2010)	Single Model	Logit	86,25
Tseng F.M., Hu Y.C. (2010)	Single Model	NN	83,75
West, Dellana, and Qian (2005)	Single Model	NN	86.86
West, Dellana, and Qian (2005)	AdaBoost	NN	87.24
Xiao, Yang, Pang, and Dang (2012)	Single Model	LOGIT	64,00
Xiao, Yang, Pang, and Dang (2012)	Single Model	NN	67,59
Xiao, Yang, Pang, and Dang (2012)	Single Model	SVM	64,40
Xiao, Yang, Pang, and Dang (2012)	LOGIT+NN+SVM		69.02

Appendix 2

Table 7. Balance sheet elements available in the dataset (Orbis global format)

Label	Formula	Definition
Fixed Assets (fixass)	IFAS+TFAS+OFAS	Total amount (after depreciation) of non current assets (Intangible assets + Tangible assets + Other fixed assets).
Intangible Fixed Assets (intfixass)		All intangible assets such as formation expenses, research expenses, goodwill, development expenses and all other expenses with a long term effect
Tangible Fixed Assets (tangfixass)		All tangible assets such as buildings, machinery, etc.
Other Fixed Assets (otherfixass)		All other fixed assets such as long term investments, shares and participations, pension funds etc.
Current Assets (currass)	STOK+DEBT+OCAS	Total amount of current assets (Stocks + Debtors + Other current assets).
Stocks (stock)		Total inventories (raw materials + in progress + finished goods)
Debtors (debtors)		Trade receivables (from clients and customers only)
Other Current Assets (othercurrass)		All other current assets such as receivables from other sources (taxes, group Companies), short term investment of money and Cash at bank and in hand.
Cash and Cash Equivalent (cash)		Detail of the Other current assets =Only the amount of cash at bank and in hand of the Company.
Total Assets (totalass)	FIAS+CUAS	Total assets (Fixed assets + Current assets)
Shareholders Funds (sharehfunds)	CAPI+OSFD	Total equity (Capital + Other shareholders funds)
Capital (capital)		Issued Share capital (Authorized capital).
Other Shareholders Funds (othersharehfunds)		All Shareholders funds not linked with the Issued capital such as Reserve capital, Undistributed profit, include also Minority interests if any.
Non-Current Liabilities (noncurrliab)	LTDB+ONCL	Long term liabilities of the company (Long term financial debts + other long term liabilities and provisions)
Long Term Debt (ltdebt)		Long term financial debts (e.g. to credit institutions (loans and credits), bonds)
Other non Current Liabilities (otherltlliab)		Other long term liabilities (trade debts, group companies , pension loans, etc.) + provisions + deferred taxes
Provisions (provisions)		Provisions (social security, taxes, etc.)
Current Liabilities (currliab)	LOAN+CRED+OCLI	Current liabilities of the company (Loans + Creditors + Other current liabilities)
Loans (loans)		Short term financial debts (e.g. to credit institutions + part of Long term financial debts payable within the year, bonds, etc.)
Creditors (creditors)		Debts to suppliers and contractors (trade creditors)
Other Current Liabilities (othercurrliab)		Other current liabilities such as pension, personnel costs, taxes, intragroup debts, accounts received in advance, etc.
Total shareh. funds & liab.(totalsharehfundsliab)	SHFD+NCLI+CULI	Total Shareholders funds and liabilities (Shareholders funds + Non current liabilities + Current liabilities)
Working Capital (workingcapital)	STOK+DEBT-CRED	Indicates how much capital is used by day to day activities = Stocks + Debtors-Creditors
Net current assets (netcurrass)	CUAS-CULI	Similar to Working capital (allowing to indicate how much capital is used by day to day activities) but using a different formula: Current assets - Current liabilities
Enterprise Value (variable was not used, too many missing observations)	Market Cap+LTDB+LOAN-CASH	For publicly listed Companies only. The enterprise value estimates the total value on the market of the Company operations by the sum of its Market capitalisation, the Long term debts and the Loans (to financial institutions) minus the Cash & cash equivalent
Number of Employees (variable not used, to omany missing observations)		Total number of employees included in the company's payroll

Source: Orbis, [@:]https://orbis.bvdinfo.com/version-20171214/home.serv?product=OrbisNeo, download date: 12.10.2017.

Table 8. Balance sheet elements available in the dataset (Orbis global format)

Label	Formula	Definition
Operating revenue (oprev)		Total operating revenues (Net sales + Other operating revenues+ Stock variations). The figures do not include VAT. Local differences may occur regarding excises taxes and similar obligatory payments for specific market of tobacco and alcoholic beverage industries.
Sales (sales)		Net sales
Cost of Goods Sold (cogs)		Cost of sold goods, production, services. Costs directly related to the production of the goods sold + depreciation of those costs
Gross Profit (grossprofit)	OPRE-COST	Operating revenue - Cost of goods sold
Other Operating Expenses (otheropexp)		All costs not directly related to the production of goods sold such as commercial costs, administrative expenses, etc. + depreciation of those costs
Operating P/L (ebit)	GROS-OOPE	EBIT. All operating revenues - all operating expenses (Gross profit-Other operating expenses)
Financial Revenue (finrev)		All financial revenues such as interest, incomes from shares, etc.
Financial Expenses (finexp)		All financial expenses such as interest charges, write-off financial assets.
Financial P/L (financialpl)	FIRE-FIEX	Result from financial activities of the Company (Financial revenue-Financial expenses)
P/L before Tax (ebt)	OPPL+FIPL	Operating profit + financial profit
Taxation (tax)		All taxes related to the accounting period (paid, accrued or deferred)
P/L after Tax (eat)	PLBT-TAXA	Profit before taxation - Taxation
Extraordinary and other Revenue (extrrev)		All extraordinary revenues and other revenues not belonging to the 'ordinary' activities of the Company.
Extraordinary and other Expenses (extrexp)		All extraordinary expenses and other expenses not belonging to the 'ordinary' activities of the Company.
Extraordinary and other P/L (extrpl)	EXRE-EXEX	All extraordinary and other result not belonging to the 'ordinary' activities of the Company.
P/L for Period (netincome)	PLAT+EXTR	Net income for the Year. Before deduction of Minority interests if any (Profit after taxation + Extraordinary and other profit).
Export revenue (export)		Part of the turnover made abroad
Material Costs (materialcosts)		Detail of the purchases of goods (raw materials + finished goods). No services.
Cost of Employees (employeecosts)		Detail of all the employees costs of the Company (including pension costs)
Depreciation & Amortization (depreciation)		Total amount of depreciation and amortization of the assets
Research & Development expenses (rd)		Total amount of expenses on research and development activities
Other operating items (otheroperitems)		Total amount of all other operating items not defined in the other memo lines (MATE, DEPR, STAF, RD). These are mainly operating expenses.
Interest Paid (interest)		Total amount of interest charges paid for shares or loans
Cash Flow (cf)	PL+DEPR	Profit for period + Depreciation
Added Value (addedvalue)	(not included, too few observations)TAXA+ PL+STAF+DEPR+IN TE	Profit for period + Depreciation + Taxation + Interests paid + Cost of employees
EBITDA (ebitda)	EBIT+DEPR	Operating profit + Depreciation

Source: Orbis, [@:] https://orbis.bvdinfo.com/version-20171214/home.serv?product=OrbisNeo, download date: 12.10.2017

IMPACT OF CSR REPORTS ON PSE LISTED COMPANIES' INCOME

Vladislav PAVLÁT, Jan LÁNSKÝ
University of Finance and Administration, Prague, Czech Republic
vladislav.pavlat@vsfs.cz, zizelevak@gmail.com

Abstract
The objective of this research paper is to analyze the impact of including CSR Reports into Annual reports of 11 companies listed on the PSE Prime Market on their income during the 5-years period of 2011 to 2015. The fulfilment of this objective is based on selection of one relevant indicator – the company's revenue – as a benchmark for the company's development potential. Data for Revenues given in different currencies were converted to be comparable. Companies were divided into two groups: with CSR and without CSR, and corresponding two tables with relative values were prepared. Then, average share values (as a geometric mean) for individual years and for both companies´ groups were calculated. Finally, an average of average values for individual years was calculated (as a geometric mean). Results of quantitative research based on data of 11 PSE listed companies did not confirm any impact of ISO 26000 on financial results of these companies (2011–15). The companies without CSR reached a better value than companies with CSR. Ergo, the introduction of CSR had no positive impact on the increase of Revenues.

Keywords: *Corporate social responsibility, Stock exchanges, The Prague Stock Exchange, CSR reports, ISO 26000*

1. INTRODUCTION

Since the last decades financial reporting has been changing in many respects. New approaches appeared and were implemented by a growing numbers of companies. The theoretical question about potential impacts on donors and takers is still discussed. In the authors' opinion, empirical research has not yet presented its last word.

The main objective of the Paper is to analyze the impact of including Corporate social responsibility (CSR) Reports into Annual reports of 11 companies listed on the PSE Prime Market on their income during the 5-years period of 2011 to 2015. Fulfillment of this objective is based on selection of one relevant indicator – the company's revenue – as a benchmark the application of which gives a quick look at the company's development potential (Banks, et. al., 2016). The European Commission (2017) has defined CSR as "the responsibility of enterprises for their impact on society."

The actual Czech approach to CSR is based on the Czech Government resolution No. 37 Strategic Framework for Sustainable Development of the Czech Republic, which determines the long-term goals for three major areas of development of modern society – economic, social and environmental (Czech Republic, 2010). In the Czech Republic, technical standard CSN 01 0391 "The management system of social responsibility of organizations – Requirements" is used for certification. This standard is issued by Czech Office for Standards, Metrology and Testing (2013). This standard is compatible with the ISO 26000 principles. ISO 26000 (International Organization for Standardization, 2010) is intended for use by organizations of all types and sizes, in all spheres, in order to assist them in their efforts to operate in the socially responsible manner that society increasingly demands.

It is evident, that today, there are many different approaches to the CSR; this important phenomenon often is differently interpreted and implemented by companies: it is obvious, that companies follow their own interests, but, at the same time, they try to act in a way which can bring some benefit to their employees, groups of people, and to the whole society as well. In this sense, CSR reflects the new business stream striving for an economic, social and ecologic responsibility to sustain a reasonable development.

In academic and managerial literature it is supposed that CSR, if correctly and reasonably applied, brings comparative advantages to corporations which voluntary accepted CSR policy (in comparison to corporations which did not accept it).This reasoning is based on an assumption that – in the framework of the capitalist market economy - the primary goal of economic activities is the profit. If the CSR would not be "profitable" for corporations and for the whole society, it probably would not exist. However, this theoretical reasoning should be examined by some quantitative analysis as well.

The presented analysis is based on company's "revenue" as a benchmark. In Annual Reports of relevant companies, this economic notion is presented differently (as, for example, "net revenues", "total comprehensive income, net of tax" or "net comprehensive income").

The authors´ ambition was firstly, to present a simple way how to compare the impact on income of the companies listed on the Prague Stock Exchange that have to present their CSR Reports with the impact on the companies not presenting CSR Reports; secondly, to elaborate a "quick" one-dimensional direct tool based on simple methods of calculation; thirdly, the authors have the intension to present a new paper on comparison of Visegrad countries Stock Exchanges based on the "quick approach" method.

The authors are aware of the existence of many other approaches to the measurement of CSR performance that are not directly related with the IFRS. Some of these methods of CSR performance measurement that apply a multi-dimensional approach are referred to in our brief survey of literature on CSR. The question of development trends of CSR reporting was not subject of our analysis.

2. LITERATURE REVIEW

In context with our research question, it is relevant to remind the history of the CSR construct notion. The beginnings are dated to the pre-war years, the 30ties and, later on, to the 40ties (Barnard, 1938/1971; Clark, 1939; Kreps, 1941).

The modern era of CSR begins in the 1950, as a stage when many CSR definitions were presented. Originally, CSR was referred to as Social responsibility (SR). Howard R. Bowen, the most important writer on CSR in the 50ties, presented his new approach as CSR (Bowen, 1953). According to modern authors, he should be called the "Father of Corporate Social Responsibility" (Carroll, 2008).

Definitions expanded during the 1960s and proliferated during the 1970s. In the 60ties, one of the outstanding authors about CSR was Keith Davis (1967) who became famous with his so called "Iron Law of Responsibility." At the beginning of the 70ties, Harold Johnson's (1971) developed 4 CSR definitions reflecting different approaches to CSR. Another book from this time has to be cited – "Social Responsibilities of Business Corporations" published by the Committee for Economic Development (1971) which redefined the changing social contract between business and society and businesses. A discussion about the meaning of CSR which took place in 1972 in the USA has to be reminded as well. Carroll (1979) proposed a four-part definition of CSR that was embedding a conceptual model of CSR.

During the 80ties, more empirical research was accomplished. Alternative themes, such as corporate social performance (CSR), stakeholder theory, and business ethics theory were presented and discussed, and many empirical research studies based on different models appeared. Relation between CSR and companies´ financial performance for the first time was examined, (Cochran and Wood, 1984; McGuire et. al., 1988).

During the 90ties, the tendency to elaborate alternative schemes continued. Since the beginning of the 21st century, attempts to combine, unify or integrate the different approaches have been continued. Measurement of CSR Performance was repeatedly studied by different authors and/or international institutions (Cochran and Wood, 1984). An important Guidance on CSR Performance was issued by United Nations (2008). A green paper on CSR was published by EU (2001). After 2000, empirical research of CSR in many countries (European and non-European included)

intensified (Gao, 2011), different types of CSR indicators were constructed (International Institute for Sustainable Development, 2008). One of the inspiring studies on CSR presented on the Berlin International Economics Congress 2012 (The impact of corporate social responsibility on business performance – can it be measured, and if so, how?)

Quantitative global trends in corporate responsibility reporting are analyzed in KPMG last report on the Corporate Responsibility Reporting (KPMG (2017) The Road Ahead.)

The use of multi-dimensional and multi-criteria approaches to CSR is expanding. One of the examples of this trend is the expanding use of GRI Standards (2016) and GRI´s Reporting Guidelines. The GRI Standards represent the best practice for reporting publicly on a range of economic, environmental and social impacts.

There are many new approaches to CSR applied by researchers. One of the new current trends is – for example – the growing research and use of integrated reporting, CSR scoring and rating, construction of country indexes, evaluation of used indicators, CSR disclosures, discussions on the research methodology and on the use of sophisticated statistical methods, etc. The only enumeration of interesting and important current literature surpasses the purpose of the presented paper.

3. COMPANIES LISTED ON THE PRAGUE STOCK EXCHANGE

At present, the 13 companies listed on the PSE Prime Market (2011–2015) belong to important international companies operating in the Czech Republic. The companies Borealis Exploration Ltd. and Pivovary Lobkowitz Group, a. s. have not been included in the analysis because of a lack of reliable data.

The majority of companies – 8 of 13 – were listed on the PSE Prime Market before 2008; 5 companies were listed after the year 2008. In the Czech Republic, 5 companies are located; 8 companies are located abroad. In other EU countries except CR, 6 companies are located. The remaining 2 companies are located outside EU. However, it was possible to analyse only 11 companies (Borealis company´s Annual Reports could not be accessed; Pivovary company left the PSE in 2013).

The branches of business of the listed companies are heterogeneous: 2 banks, 1 insurance company, 1 developer, 1 electricity producer and distributor, 1 chemical industry, 1 telephone company, 1 producer of non-woven textiles, 1 sport facilities operating, 1 fixed-odds betting operator, 1 media and entertainment company. The size is different as well: 7 corporations of big size, 5 of medium size.

The CEZ Group, a. s., is one of the Czech biggest companies. Primarily, it is the electricity producer, the operator of the distribution grid and the player in the wholesale and retail electricity market. The Unipetrol group constitutes an important part of the Czech industry. UNIPETROL, a. s. is the parent company of Unipetrol Group. Two core business segments are the downstream (combining refining and petrochemicals) and retail distribution of fuels. The O2 CR provides a comprehensive portfolio of voice and data and Internet services in fixed and mobile technologies, including offers to use the network infrastructure for operators and providers of public and private networks and services.

Komerční banka, a. s. (KB a.s.) is a part of the Société Générale Group. Komerční banka group provides comprehensive services for clients in retail, corporate and investment banking. In retail banking, Komerční banka focuses on providing comprehensive financial services for individuals and small businesses. Erste Group Bank offers banking facilities in many Central European Countries. “Česká spořitelna” (Czech Savings Bank) is one of the Erste Group member. VIG is a big player in financial services (insurance). CETV is a media and entertainment company. PEGAS Nonvowens is specialized in production of nonwoven textiles. TMR is operating sport facilities in the Tatra Mountains in Slovakia. VGP Group develops, builds and leases logistics and semi-industrial real estate as well as ancillary offices. The Fortuna Entertainment Group is the largest Central European fixed-odds betting operator.

It is obvious that the type of business activities of different companies is of a great importance for the companies´ approaches to CSR Reporting. Some companies, for example, prefer the "branding" approach; other companies may not include the CSR into their Annual Reports, as it is not their priority.

Annual Reports of relevant companies during the 5-years period were used as the basic sources together with selected PSE information. The complete list of the cited Annual Reports is quoted in References: CEZ Group a. s. (2015), UNIPETROL, a. s. (2015), O2 CR (2015), Komerční banka, a. s. (2015), Erste Group Bank (2015), VIG (2015), CETV (2015), PEGAS Nonvowens (2015) and TMR (2015). The English language versions of Annual Reports are convenience translations. The versions in the Czech language are the definitive versions.

4. METHODOLOGY

In Financial Statements of individual companies *C* data for indicator *Revenues* in the years *Y* were found which are denoted by $Revenues(C)_Y$. In Financial Statements this indicator was called "net revenues", "total comprehensive income, net of tax" or "net comprehensive income". In Financial Statements, the indicator Revenues value were indicated in different currencies *Curr* (CZK, EUR, USD and SKK) and in different *Units* (thous., mil.). For use in this Paper the individual values $Revenues(C)_Y$ *[Units Curr]* were transformed into domestic currency CZK and its multiple millions $Revenues(C)_Y$ *[mil. CZK]*. In Financial Statements of individual companies C, for transformation of exchange rates, the Czech National Bank Exchange rates valid for the given calendar year were used; they are indicated on web Kurzy (2017). Transformation was made by means of the relation (1). Results are to be found in table 1.

$$\mathrm{Re}venues(C)_Y[mil.CZK] = \mathrm{Re}venues(C)_Y[Units\,Curr]/(mil./Units)*(Curr/CZK) \qquad (1)$$

Companies were divided into two groups $G_{WithCSR}$ and $G_{WithoutCSR}$, according to the whether they are issuers of CSR reports or not. In the $G_{WithCSR}$, there are 5 companies KB, a. s., Erste Group Bank, O2 CR., TMR and Unipetrol a. s. In the $G_{WithoutCSR}$, there are 6 companies CETV, CEZ Group a. s., Fortuna, Pegas, VIG and VGP. The company Borealis should have belong to this group; however, this company was excluded, because from its Financial Statements values $Revenues(C)_Y$ could not be found.

For individual companies *C*, relation *Revenues* for each pair in the years *Y+1* and *Y* were calculated; they are denoted by $Revenues(C)_{(Y+1)/Y}$. The calculation is given by relation (2). For these relative $Revenues(C)_{(Y+1)/Y}$ two separate tables (table 2 for the group With CSR, table 3 for group Without CSR) were prepared.

$$\mathrm{Re}venues(C)_{(Y+1)/Y} = \mathrm{Re}venues(C)_{(Y+1)}[mil.CZK]/\mathrm{Re}venues(C)_Y[mil.CZK] \qquad (2)$$

Average values for every company and the relevant years $Revenues(C)_{2011to2015}$ were calculated as a geometric mean of proportional values in individual years. Geometric mean (instead of an arithmetic mean) was used, because individual values from which the mean was calculated are shares of two values (Crawley, 2005). The calculation is given by relation (3). The values are to be found in the tables 2 and 3 in the last column.

$$\mathrm{Re}venues(C)_{2011to2015} = \sqrt[4]{\prod_{Y=2011}^{2014}\mathrm{Re}venues(C)_{(Y+1)/Y}} \qquad (3)$$

Average values for individual years and for companies´ groups $G_{With\ CSR}$ and $G_{Without\ CSR}$ were calculated. Geometric mean was used, because individual values from which the mean was calculated are shares of two values (Crawley, 2005). For calculation $Revenues(G_{WithCSR})_{(Y+1)/Y}$ the relation (4) was used; analogical calculation was made for $Revenues(G_{WithoutCSR})_{(Y+1)/Y}$. The values are to be found in the tables 2 and 3 in the last line.

$$\mathrm{Re}venues(G_{WithCSR})_{(Y+1)/Y} = \sqrt[|GWithCSR|]{\prod_{C \in GWithCSR} \mathrm{Re}venues(C)_{(Y+1)/Y}} \quad (4)$$

Finally, an average of average values for individual years was calculated. A geometric mean was used (Crawley, 2005). For every group one number was created *Revenues(*$G_{WithCSR}$*)* $_{2011to2015}$ resp. *Revenues(*$G_{WithoutCSR}$*)* $_{2011to2015}$. The calculation for $G_{WithCSR}$ is given by relation (5); analogically, $G_{WithouCSR}$. These number are to be found in the tables 2 and 3 in the intersection of the last column and the last line.

$$\mathrm{Re}venues(G_{WithCSR})_{2011to2015} = \sqrt[4]{\prod_{Y=2011}^{2014} \mathrm{Re}venues(G_{WithCSR})_{(Y+1)/Y}} \quad (5)$$

5. RESULTS

Table 1 contains *Revenues* of individual companies in 2011–2015. As financial statements are given in different currencies (EUR, CZK, SKK, USD) a in different multiples (thous., mill.), we had to normalize the values by means of the relation (1). Table 1 contains the values transformed to national currency of Czech Republic, Czech Crown (CZK). Revenues are in millions of Czech Crowns.

In financial statements of some companies the item *Revenues* was not directly found, therefore we had to use a similar item. For company CETV item *Net Revenues* was used, for company VGP – *net comprehensive income*, and for companies KB, a. s. and Erste Group Bank *Total comprehensive income, net of tax* was used. This substitution is irrelevant for the result of our research. In the following calculations and tables only mutual relations of indicator *Revenues* for the same company in the same period of time are compared; mutual relations of indicator *Revenues* for different companies are not compared.

Table 1. Company revenues (mil., CZK)

Company name	2011	2012	2013	2014	2015
CETV	14 177	13 824	12 387	14 124	14 904
CEZ Group, a. s.	209 761	215 095	217 273	201 751	210 167
KB, a. s.	15 454	24 862	4 901	21 643	9 544
Fortuna		343	315	426	45
Erste Group Bank	185 174	175 788	180 912	189 369	183 118
O2 CR	52	51	48	37	37
Pegas	4 078	4 533	5 174	6 348	6 253
TMR	31 631	35 106	46 858	51 462	64 223
VIG		6 169	6 657	3 038	10 677
VGP	426	280	631	1 359	1 598
Unipetrol, a. s.	97 427	107 280	99 414	123 938	108 907

Source: own data calculated from the financial statements

In tables 2 and 3 the ratios of the Revenues indicator in consecutive years are shown. The calculation was made using the relationship (2). Table 2 contains companies with CSR, table 3 contains companies without CSR. We present the average of values from individual columns for the given company in the last column *Average*. The column Average is representing average values of *Revenues* ratios in two consecutive years for the whole period of 2011–2015. The calculation was made using the relationship (3). In the last line named *Average* we present the average of the values given in the individual rows. The line *Average* is representing average values of Revenues ratios in two

consecutive years; the average was calculated over the values of each company. The calculation was made using the relationship (4).

The value in the last line and the last column is calculated as an average of values in the last line. This value describes the average success rate of all companies in the given table between 2011 – 2015, as measured by the relative increase in the *Revenues.* The calculation was made using the relationship (5). Using this figure we can compare the difference for companies with CSE (Table 2) and without CSR (Table 3). Companies with CSR reports reached the value 99.9%, companies without CSR reports reached the value 100.7%. The companies without CSR reached by less than one percent better value than companies with CSR. Therefore, it is not possible to conclude that the introduction of CSR would have a positive impact on the increase of *Revenues.*

Table 2. Ratio of revenues for companies with CSR

Company name	2012 / 2011	2013 / 2012	2014 / 2013	2015 / 2014	Average
KB, a. s.	160,9%	19,7%	441,6%	44,1%	88,6%
Erste Group Bank	94,9%	102,9%	104,7%	96,7%	99,7%
O2 CR	96,4%	94,8%	78,0%	100,0%	91,9%
TMR	111,0%	133,5%	109,8%	124,8%	119,4%
Unipetrol, a. s.	110,1%	92,7%	124,7%	87,9%	102,8%
Average	112,5%	75,0%	137,6%	85,9%	**99,9%**

Source: own data calculated from the financial statements

Table 3. Ratio of revenues for companies without CSR

Company name	2012 / 2011	2013 / 2012	2014 / 2013	2015 / 2014	Average
CETV	97,5%	89,6%	114,0%	105,5%	101,3%
CEZ Group, a. s.	102,5%	101,0%	92,9%	104,2%	100,0%
Fortuna		91,8%	135,4%	10,6%	50,8%
Pegas	111,2%	114,2%	122,7%	98,5%	111,3%
VIG		107,9%	45,6%	351,5%	120,1%
VGP	65,7%	225,8%	215,3%	117,6%	139,2%
Average	92,4%	115,0%	109,5%	88,3%	**100,7%**

Source: own data calculated from the financial statements

6. DISCUSSION

The ISO 26 000 enumerate the expected positive results stemming from the use of this international standard for corporations. These results were defined by standards-setter based on theoretical expectations.

Results of our quantitative research based on data of 11 PSE listed companies, however, did not confirm any impact of ISO 26000 use on financial results of these companies (2011–15). But: this fact does not exclude that for another companies´ set, or for a longer time period, positive results could not be found.

Let us ask the question, why many corporations do use the ISO standards, if they are not obliged to do so by any regulation. A simple answer: they probably draw some – direct or indirect – advantage from the ISO standards use. By companies applying ISO standard, some „value-added“ (of a qualitative character) is expected – otherwise they would not incur additional cost. There are situations, when the reason for the ISO use is evident. Let us give a few examples: (a) on a market where free competition prevails, the inclusion of CSR in the annual report might be interesting for

stakeholders (and other potential investors), as it could be seen as a proof of the given company financial health, development potential, economic power etc., and a signal for investments; (b) in a case when the given company would feel that the public probably would percept the edited CSR as a signal of the company's growing trustworthiness. Generally speaking, the motives of a company to edit its CSR are different, and they are changing according to the changing political, economic and social situation. The expected advantages created by editing CSRs are different as well. (Note: generalized in the ISO wording.) When the advantages of ISO are high-lighted and the CSR recommended on an international scale, the demonstration-effect can induce many companies to accept CSRs as a part of reporting.

7. CONCLUSION

Many corporations are using ISO standards in spite of the fact that they are not obliged to do so by any regulation. By companies applying ISO standard, evidently some „value-added" is expected – otherwise they would not incur additional cost.

The motives of a company to edit its CSR are different. For example, on a market where free competition prevails, the inclusion of CSR in the annual report might be interesting for stakeholders (and other potential investors), as it could be seen as a proof of the given company financial health, development potential, economic power etc., and a signal for investments. Another example: a situation when the given company would feel that the public probably would percept the edited CSR as a signal of the company's growing trustworthiness.

The ISO 26 000 enumerate the expected positive results stemming from the use of this international standard for corporations. However, these results were originally defined by standards-setter based on theoretical expectations without practical quantitative proofs.

The objective of this research paper was to analyze the impact of including CSR Reports into Annual reports of 11 companies listed on the PSE Prime Market on their income during the 5-years period of 2011 to 2015. Our approach differs from current companies´ comparisons from the same branch, as we compared companies from different branches listed on a Stock Exchange, i.e. heterogeneous companies.

Companies were divided into two groups: companies with CSR reports and Companies without CSR reports. Then the company income as only one relevant indicator was selected to compare the economic results of all companies instead of using a more complex indicator. We expected that – according to the theory of a positive impact of CSR – by companies with CSR a relatively higher income would be attained. However, this assumption was not confirmed by our calculations: Companies with CSR reached the value 99.9%, companies without CSR reached the value 100.7%. Companies without CSR reports reached by less than one percent better value than companies with CSR reports.

Ergo: Results of our quantitative research based on data of 11 PSE listed companies, did not confirm any impact of ISO 26000 use on financial results of these companies (2011-15). But: this fact does not exclude that for another companies´ set, or for a longer time period, positive results could not be found.

Acknowledgement
This research was supported by the Czech Science Foundation as part of the project New Sources of Systemic Risk on Financial Markets (GA ČR 16-21506S).

BIBLIOGRAPHY

Barnard, C.I. (1938/1971), *The Functions of the Executive*, 30st ed. Harvard University Press, Boston, MA, USA.

Banks, L., Hodgson, A. and Russell, M. (2016), "Is Comprehensive Income Component Reporting Superior? A Focus on Analyst Revisions and Reporting Location", in Jindrichovska, I. and Kubickova, D. (Eds), *The 4th International Scientific Conference IFRS: Global Rules and Local Use*, Anglo-American University, Prague, Czech Republic, pp. 7–22.

Bowen, H.R. (1953), *Social Responsibilities of the Businessman*, Harper, New York, USA.

Carrol, A.B (1979), "A Three-Dimensional Conceptual Model of Corporate Performance", in: *The Academy of Management Review,* Vol. 4 No. 4, pp. 497–505.

Carrol, A.B (2008), "A History of Corporate Social Responsibility: Concepts and Practices", in Crane, A., Mc Williams, A., Matten, D., Moon, J. and Siegel, D.S. (Eds), *The Oxford Handbook of Corporate Social Responsibility*, Oxford University Press, New York, USA, pp. 19–46.

CETV (2015), *Central European Media Enterprises Ltd. Annual Reports*, available at: http://www.annualreports.com/Company/central-european-media-enterprises-ltd (accessed 7 July 2017).

CEZ Group a. s. (2015), *Annual Reports*, available at: https://www.cez.cz/en/investors/financial-reports/annual-reports.html (accessed 7 July 2017).

Clark, J.M. (1939), *Social control of business*, McGraw-Hill, New York, USA.

Cochran, P.L. and Wood, R.A. (1984), "Corporate social responsibility and financial Performance", in: *The Academy of Management Journal*, Vol. 27 No. 1, pp. 42–56.

Committee for Economic Development (1971), *Social Responsibilities of Business Corporations*, available at: https://www.ced.org/pdf/Social_Responsibilities_of_Business_Corporations.pdf (accessed 7 July 2017).

Crawley, M.J. (2005), *Statistics: An Introduction using R*, John Wiley & Sons Ltd., Chichester, United Kingdom.

Czech Office for Standards, Metrology and Testing (2013), "The management system of social responsibility of organizations – Requirements", in Czech, *CSN 01 0391*,

Czech Republic (2010), *The Strategic Framework for Sustainable Development of the Czech Republic*, in Czech, Government Council for Sustainable Development and Ministry of the Environment, available at: https://www.vlada.cz/assets/ppov/udrzitelny-rozvoj/Strategicky_ramec_udrzitelneho_rozvoje.pdf (accessed 7 July 2017).

Davis, K. (1967), Human relations at work. Amazon N.Y. ISBN-10: 007015483.

Erste Group Bank (2015), *Financial Reports*, https://www.erstegroup.com/en/investors/reports/finanzberichte (accessed 7 July 2017).

European Commission (2017), *Corporate Social Responsibility (CSR)*, available at: http://ec.europa.eu/growth/industry/corporate-social-responsibility_en (accessed 7 July 2017).

European Union (2001), *Green Paper: Promoting a European framework Corporate Social Responsibility*, The European Union green paper on CSR, Commission of the European Communities, Brussels, Belgium, available at: http://europa.eu/rapid/press-release_DOC-01-9_en.pdf (accessed 7 July 2017).

Fortuna (2015), *Financial Results – archive*, available at: http://www.fortunagroup.eu/en/investors/financial_results/archive/index.html (accessed 7 July 2017).

Gao, Y., (2011) "CSR in an emerging country: a content analysis of CSR reports of listed companies", in: *Baltic Journal of Management*, Vol. 6 No. 2, pp. 263–291.

GRI 101: FOUNDATION 2016. https://www.globalreporting.org/standards/media/1036/gri-101-foundation-2016.pdf

International Institute for Sustainable Development (2008), *Corporate Responsibility in the Age of Irresponsibility: A symbiotic relationship between CSR and the financial crisis?*, available at: http://www.iisd.org/pdf/2009/csr_financial_crisis.pdf (accessed 7 July 2017).

International Organization for Standardization (2010), *ISO 26000 - Social responsibility*, Geneva, Switzerland.

Johnson, H.L. (1971), *Business in contemporary society: framework and issues*, Wadsworth Pub. Co., Belmont, Calif., USA.

Kaufmann, M., Olaru, M.(2012). *The impact of corporate social responsibility on business performance – can it be measured, and if so, how?* http://www.culturaldiplomacy.org/academy/content/pdf/participant-papers/2012-03-biec/The_Impact_of_Corporate_Social_Responsibility_on__Business_Performance_-_Malte_Kaufmann.pd

Komerční banka, a. s. (2015), *Annual Reports*, available at: https://www.kb.cz/en/about-the-bank/investor-relations/reporting-and-results/annual-reports/ (accessed 7 July 2017).

KPMG (2017). The Road Ahead. The KPMG Survey of Corporate Responsibility Reporting 2017.https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/10/kpmg-survey-of-corporate-responsibility-reporting-2017.pdf

Kurzy (2017), *Kurzy historie, kurzovní lístek ČNB*, in Czech, available at: http://www.kurzy.cz/kurzy-men/historie/ (accessed 7 July 2017).

Kreps, T.J. (1941), "Measurement of the social performance of business", in: *An investigation of concentration of economic power for the temporary national economic committee*, Monograph No. 7, U.S. Government Printing Office,. Washington, DC, USA.

McGuire, J.B., Sundgren A. and Schneeweis, T. (1988), "Corporate Social Responsibility and Firm Financial Performance", in: *The Academy of Management Journal*, Vol. 31 No. 4, pp. 854-872.

02 CR (2015), *Annual and Half-Year Reports*, available at: https://www.o2.cz/spolecnost/en/annual-and-half-year-reports/ (accessed 7 July 2017).

PEGAS Nonvowens (2015), *Annual and Half Year Reports*, available at: http://www.pegas.cz/en/annual-and-half-year-reports-2015 (accessed 7 July 2017).

TMR (2015), *Annual Reports*, available at: http://www.tmr.sk/investor-relations/financial-information/annual-reports/ (accessed 7 July 2017)

UNIPETROL, a. s. (2015), *Annual and half-year reports*, available at: http://www.unipetrol.cz/en/InvestorRelations/AnnualandSemi-annualReports/Pages/2015.aspx (accessed 7 July 2017).

United Nations (2008), *Guidance on Corporate Responsibility in Annual Reports*, United Nations Conference on Trade and Development, New York, USA and Geneva, Switzerland, available at: http://unctad.org/en/Docs/iteteb20076_en.pdf (accessed 7 July 2017).

VGP (2015), *Reports*, available at: http://www.vgp.cz/investors/en/reports/annual-reports (accessed 7 July 2017).

VIG (2015), *Annual Reports*, available at: http://www.vig.com/en/investor-relations/downloads/annual-reports.html (accessed 7 July 2017).

CSR / Integrated and Non-financial Reporting

NON-FINANCIAL REPORTING IN CZECH BEVERAGE INDUSTRY

Irena JINDŘICHOVSKÁ
Anglo-American University, Prague
irena.jindrichovska@aauni.edu

Dana KUBICKOVA, Vladimír NULÍČEK
University of Finance and Administration, Prague, Czech Republic
dana.kubickova@centrum.cz, vnulicek@gmail.com

Abstract
In this study we explore the practices of non-financial reporting in annual reports of representative sample of companies from Czech beverage industry (combination of breweries, distilleries and wine produces). We set up the position of beverage industry in the industrial structure of the Czech Republic and subsequently and we look into used practices of non-financial reporting. Companies in our sample are predominantly SMEs, although some of them are linked with parent companies listed on international stock exchanges or are parts of bigger groupings. Using qualitative methodology we have assessed the narrative statements related to 11 non-financial characteristics of relevant companies and subsequently we have calculated the correlation of strength of non-financial reporting with several absolute indicators and financial ratios. We have found that non-financial reporting is not yet widely used in the Czech Republic in general. However, non-financial reporting is weakly positively linked with the size and age of the company, and it is weakly negatively associated with company indebtedness. At the same time, the non-financial reporting measures are independent on profitability indicators ROE and ROA.

Keywords: *non-financial reporting, beverage industry, financial indicators, CSR, analysis of narrative reports*

1. INTRODUCTION

Over the last few decades the development of the world economy has been accompanied by efforts to harmonize financial accounting / reporting. The main goal of reporting is to provide comparable and reliable data provided by accounting as a specific set of methods for recording, structuring and presenting data on financial position and performance of companies in different national environments (Demski, 1973; Gray, 1988; Williams, 1999; Riahi-Belkaoui, 2004; Deegan, 2013).

At the same time , however, there are other, very significant changes in the economic and business environment. The social character of companies grows: companies and corporations are increasingly dependent on their surroundings, they are more and more closely interconnected and their success depends on their perception (acceptance, assessment) around the environment and in the wider context of the whole society. Management of companies must increasingly take into account the interests and needs of stakeholders (investors, employees, business partners, state institutions and others) in their decision-making process. Some factors that have not yet been taken into account include environmental considerations, social aspects, quality of workforce, market position, and others (Gray, Owen, & Adams, 1996 and Deegan, 2002).

Efforts to unify different approaches resulted in the establishment of the International Integrated Reporting Council (IIRC) in 2010. In this study we explore the practices of non-financial reporting in annual reports of representative sample of companies from Czech beverage industry (combination of breweries, distilleries and wine produces) and we look into used practices of non-financial reporting that should provide information to various interest groups. We also want to discover the link between non-financial reporting and profitability of companies in this industrial segment.

2. LITERATURE REVIEW

There are various studies concerned with the transformation of the Czech agricultural and food sectors.

Muchlinski (1996) analyses the case of Czech Budvar and a US firm's interest in acquiring a stake in it, putting it into a wider legal and political context of the Czech transitional economy. The study suggests that, to finance large privatisations, Czech Republic does not need to heavily rely on foreign direct investments from MNEs.

Věžník and Bartošová (2004) aim to determine the largest regional differences of the Czech agricultural sector after transformation period with regard to natural resources, an uneven territorial development followed the transition to a market economy. These evident regional disproportions pose a problem and call for an effective regional policy to facilitate economic development. The authors provided an increased consideration to the reorganization of the agricultural sector, as well as the social and economic environments in which it operates.

The recent corporate scandals and the rise of CSR have revealed some flaws in the traditional financial reporting (TFR), critics claiming that these do not present the complete picture of a firm's activities. Guthrie, Cuganesan and Ward (2007) argue that Intellectual Capital (IC) and CSR should be integrated in any reporting frameworks, as both address sustainability and aim to mitigate the shortcomings of TFR. Arguing that generic reporting frameworks have few benefits, the paper aims to develop an extended performance reporting (EPR) framework, customizing it for the Australian food and beverage industry.

Putićová and Mezera (2008) analyse the development of the Czech food industry and the trends of main economic indicators. Their findings suggest that the food industry's position has deteriorated compared to the manufacturing industry, which has witnessed dynamic growth. The separate branches of the food sector have heterogeneous development trends, but, overall, the labour productivity of this industry has significantly increased.

Cuganesan, Guthrie and Ward (2010) analysed the Australian food and beverage industry to investigate whether companies with different CSR profiles employ distinct CSR disclosure strategies. Each industry sub-sector was classified according to the extent of negative social effects that their products might have, e.g. brewers, distillers and vine producers have a high CSR profile as the products may cause health deterioration. The methodology used was content analysis of disclosed information, categorizing it then into four distinct disclosure strategies. The findings reveal that companies with higher CSR profiles find it more challenging to change actual behaviour and therefore theyresort to strategies of changing public perceptions, expectations and deflecting attention. The results of the research also reveal a need for CSR disclosure guidelines specific for each industry sub-sector, rather than a "one size fits all" approach.

Chmelíkova (2011) researched current knowledge in the area of performance measurement systems for SMEs. The aim of her paper was to customize performance measurement system of the Czech brewery segment, including financial and non-financial measures. She suggests that a framework, similar to a Balanced Scorecard and EVA should be the main indicators, which can be applied by microbreweries for measuring their performance.

Researchers have also analysed aspects of sustainability reporting in the aforementioned sectors. One paper presents current trends in corporate performance evaluation and discusses sustainable reporting of companies in the Czech agriculture and food processing sectors. The companies were assessed based on their level of establishing KPIs for the measurement of their environmental, social, economic and governance (ESG) performance (Hřebíček et al., 2012). Hřebíček et al. (2015) have also set out to analyse the development of Sustainability Reporting (SR) in the food and agriculture sectors. The purpose was to identify the SR determinants and examine any inconsistencies or gaps that could be further researched. The authors present a prototype of a Web Sustainability Reporting Information System (WESRIS) that could be used for a company's sustainability assessment, evaluating whether its activities are in line with sustainable development principles

Various recent studies have also looked into the Czech brewery sector as the brewery sector is one of the leading markets in the Czech food industry. Kasem et al. (2015) set out to analyse Czech breweries' ability to maintain long-term productivity and profitability. The aim of the study was to evaluate sustainability performance, covering four dimensions – economic, environmental, social, and governance. Computing efficiency scores allowed distinguishing between efficient and non-efficient organizations. Thus, this model could be used by companies to evaluate their sustainability performance and monitor their efficiency scores. The authors also discuss several barriers to sustainability reporting, including high costs for data collection and management, challenges with determining appropriate indicators, obtaining reliable data, and others.

Another Czech industry specific study on gravity model by Blazkova and Chmelikova (2015) deals with food and beverages industry in Czech Republic. Their paper deals with the market concentration and the development and impact of the import competition in the Czech food and beverage industry in 2003-2013. The results indicated that the market concentration grew in the food industry in the period 2003-2013 and the import competition strengthened, however, there are differences among particular sectors in the Czech food and beverages industry.

3. METHODOLOGY AND SAMPLE

The aim of our research is to explore the practices of non-financial reporting in the Czech firms. We chose companies from the beverage industry, which is one of the traditional branches in the industrial structure of the Czech economy. The sample of companies was comprised of breweries, distilleries and wine producers. The sample characteristics, its structure, including the selected financial characteristics, are shown in table 1.

Table 1. The structure of the sample and selected characteristics

	Branch	**Total Assets net** *(thousand CZK)*	**Age (years)**	**ROA (%)**	**ROE (%)**	**Debt-to-Assets (%)**
Znovin Znojmo	1	144 555	26	13.50	17.50	45.90
Tanzberg Mikulov	1	46 604	19	-2.80	-1320	71.80
Vinium	1	265 046	26	2.50	1.40	92.90
Patria Kobyli	1	190 336	20	1.59	1.52	23.20
Vinselekt Michlovsky	1	89 748	15	4.50	5.60	43.20
Chateau Valtice	1	183 912	26	8.10	5.10	34.10
Rudolf Jelínek	2	270 099	24	5.00	6.30	39.60
Palírna u Zeleného stromu	2	212 729	21	4.10	19.50	79.10
Jan Becher	2	388 829	24	19.50	24.70	36.20
Stock Plzen Božkov	2	3633 649	11	5.30	15.40	88.40
Měš Pivovar Havl.B.	3	252 038	23	6.90	7.20	18.10
Pivovar Litovel (cca 1,3%) (Přer.)	3	534 019	24	2.50	2.10	15.10
Plzensky Prazdroj(cca42%)	3	20 355	25	41.20	86.00	71.50
Uherský Brod (L)	3	117 459	23	2.80	2.90	9.70
Chodovar	3	145 721	27	8.90	14.50	69.40
Tradičnípivovar v Rakovníku	3	120 067	10	3.00	3.20	13.50
Pivovar Holba 1,3%	3	450 183	29	-2.20	-6.70	48.50
Pivovar Ferdinand	3	86 786	14	4.90	9.70	66.60
Pivovar Jihlava	3	249 552	24	1.10	2.30	16.80

Pivovar Svijany(cca1,4%) LIF	3	283 358	20	28.10	28.80	14.30
Bohemia Regent	3	120	19	5.70	12.10	68.00
Pivovar Klášter (L)	3	21 699	21	4.00	4.10	51.60
PivovarZubrcca 1,3% (Přerov)	3	512 026	24	0.50	-0.32	40.70
Pardubický Pivovar	3	234 442	25	2.30	0.05	55.00
PivovarStrakonice	3	96 864	15	0.58	0.13	15.40
BudějovickýBudvar (cca 7%)	3	3 961 374	51	6.80	5.90	11.80
Pivovar Rychtář (L)	3	64 744	10	2.60	2.30	14.00
Krakonoš	3	116 100	20	10.10	10.80	25.68

Source: own investigation based on firms' annual reports, for more details on production of beer see appendix 1

To reach the aim of our research, we used content analysis of narrative parts of annual reports of the companies in sample. To decompose the area of nonfinancial reporting, we used the classification of the non-financial information presented in annual reports. This classification of non-financial information is based on the IIRC Framework's (2013) representing requirements on the companies' integrated reports. We have identified and analysed annual reports using a following scoring scale.

Table 2. Decomposition of non-financial information in the annual report (template)

		0	1	2	3	4
		No Infor-mation	Some numbers or short interpretation	More numbers and/or more interpretation	Solid numbers and interpre-tation	Continuous exhaustive commentary
1.	Financial indicators					
2.	Comment on fulfilment of plan					
3.	Outlook for the next year					
4.	Long-term strategy					
5.	Research and Development					
6.	Market development					
7.	Customer satisfaction					
8.	Relations with suppliers					
9.	Human resources of company in concern					
10.	Sponsorship and donation					
11.	Work with local community					

Source: own investigation based on previous literature and on IIRC

The published annual reports have been analysed to see whether, and to what extent the selected companies present information on indicated eleven areas. Classification of the detail of presented information was expressed by scores 0-4, where score 0 expressed the fact that the aspect is not solved at all. Report with score 1 expressed only basic information – typically only isolated data without further comments. Score 2 expressed the fact that more information is provided, but without consistent comments or vice versa, only comments without specific data. Score 3 expressed more

detailed numeric values with explanation, but not complete or exhaustive. And, finally, score 4 expressed a complete set of information accompanied by follow-up comments.

The attribution of particular scores depends on subjective assessment of authors, however, in an attempt to limit this subjectivity, assignment of scores to individual areas was carried out in two phases. At first the level of reported facts were determined and assessed in the whole set of companies, and only in the second phase e, numerical scores were assigned to each reported fact.

To assess the association of the non-financial reporting quality with the selected financial indicators we used the Pearsons′ correlation coefficient (1):

$$r = \frac{\sum_{i=1}^{n}(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2 \sum_{i=1}^{n}(y_i - \bar{y})^2}} \qquad (1)$$

where:
x_i = *individual value of non-financial reporting*
$\bar{x}$ = *average value of the non-financial reporting*
y_i = *individual value of the ratio (ROA, ROE, D/A, CA, Age)*
$\bar{y}$ = *average value of the ratio (ROA, ROE, D/A, CA, Age)*

The results revealed only correlation with the total assets and age of firms. But even in this case the dependence is very weak. The quality of non-financial reporting is not in correlation with the return on assets or return on equity. Slightly negative correlation was identified in the case of leverage (indebtedness): the higher the debt, the worse was the explanatory power of the non-financial report.

Table 3. Tests of significance

			Variable				
			DEBTA	**DEBTE**	**DEP**	**ROA**	**ROE**
Variable	DEBTA	Cor. Coef	1.000000				
		t-stat	-----				
		p value	-----				
	DEBTE	Cor. Coef	0.796915	1.000000			
		t-stat	4.756424	-----			
		p value	0.0004***)	-----			
	DEP	Cor. Coef	0.229033	0.291096	1.000000		
		t-stat	0.848342	1.097073	-----		
		p value	0.4116	0.2925	-----		
	ROA	Cor. Coef	0.082114	0.032744	0.040584	1.000000	
		t-stat	0.297071	0.118124	0.146450	-----	
		p value	0.7711	0.9078	0.8858	-----	
	ROE	Cor. Coef	0.222810	0.175501	0.223517	0.949385	1.000000
		t-stat	0.824070	0.642755	0.826820	10.89747	-----
		p value	0.4248	0.5316	0.4233	0.0000***)	-----
	TOT	Cor. Coef	0.432828	0.840715	0.093830	-0.057606	0.019298
		t-stat	1.731143	5.598090	0.339808	-0.208046	0.069594
		p value	0.1071	0.0001***)	0.7394	0.8384	0.9456
	TOTN	Cor. Coef	0.475436	0.870469	0.167425	-0.096462	0.003492
		t-stat	1.948518	6.376209	0.612304	-0.349430	0.012590
		p value	0.0733*)	0.0000***)	0.5509	0.7324	0.9901

Note: **,**,*** show %10, %5 and %1 significance respectively*

Source: own calculation

When running significance tests for relations between NFR and enlisted "hard" variables, we found that these relations are insignificant. Significant relations were only between financial ratios (see table 5). Statistically significant correlation were found between debt to asset and debt to equity, debt to assets and total assets net, debt to equity and total assets, debt to equity and total assets net, and between ROA and ROE. Evidence for non-financial variables was not significant. We claim that the value on non-financial reporting is not yet recognized by managers and other corporate stakeholders in the Czech Republic.

4. RESULTS AND DISCUSSION

For all companies non-financial reporting was recognized as part of analysis of annual reports. Quantitative characteristics were evaluated in the individual areas of non-financial reporting and within individual reports of companies and for the entire set of reports. Subsequently, these characteristics were organized within individual groups of companies (wineries, distilleries, breweries). Results are shown in Table 3.

Attention to nonfinancial features of companies in our sample is rather low. Regarding industry subsectors, the best non-financial reporting was identified in the set of distilleries – with the average score 1.43, the second subset of firms was the winery – with the average little lower score of 1.36. The worst level of non-financial reporting was identified in the set of breweries – average score of 1.09, however, this may be also caused by the fact that this group was rather heterogeneous consisting of mix of small and big breweries.

From the point of view of subject of non-financial reporting, the best score gained the area of comments on plan fulfilment and outlook for the next year. There were found very precise reports, containing both numbers and comments on them. As it concerns the companies subsectors, the best situation was found in distilleries, however, in this case it must be stressed that there was really, the low number of companies in this group.

Table 4. Average value of non-financial information in the branches and criteria

Branch	Number of firms	Financial indicators	Comment on fulfilment of plan	Outlook for the next year	Long-term strategy	Research and Development	Market development	Customer satisfaction	Relations with suppliers	Human resources of society	Sponsorship and donation	Working with local community	**Average**
Wineries	6	2.50	2.67	2.50	1.00	0.83	1.67	0.50	1.67	0.67	-	1.00	**1.36**
Distilleries	4	2.50	3.00	3.00	2.00	0.75	0.50	0.75	-	2.50	-	0.75	**1.43**
Breweries	18	1.61	2.00	1.83	1.11	0.56	061	1.00	0.33	1.11	0.50	1.28	**1.09**
Total	**28**	**1.93**	**2.29**	**2.14**	**1.21**	**0.64**	**0.82**	**0.86**	**0.57**	**1.21**	**0.32**	**114**	**1.19**

Source: own investigation based on firms´ annual reports

As it regards the individual companies the first three firms with the highest score of attention to non-financial reporting were: Chateau Valtice (winery), Budějovický Budvar (brewery) and Patria Kobyli (winery), whilst the three companies with lowest score were Pivovar Klášter (brewery), Pivovar Uherský Brod (brewery) and Tanzberg Mikulov (winery). Average score of attention to non-financial scoring was rather low 13.14 out of possible 44. Which represent about 14.14 percent.

In the next stage, we assessed the association of the non-financial reporting quality with the selected financial indicators. As an independent variable, we used total assets (in net value), age of firm, indicator ROA and ROE, and the leverage (indebtedness). The results are presented in the table 4.

Table 5. Correlation between the level of non-financial information and selected indicators

Analysed associations	Result	Interpretation
NFR vs. Total Assets Nett	0.34	slightly correlated, directly dependent
NFR vs. Age	0.25	slightly correlated, directly dependent
NFR vs. ROA	-0.03	independent
NFR vs. ROE	0.01	independent
NFR vs. Debt To Assets	-0.24	slightly correlated, indirectly dependent

Note: NFR – average value of non-financial report

Source: own calculation

The results revealed only correlation with the total assets and age of firms. But even in this case the dependence is very weak. The quality of non-financial reporting is not in correlation with the return on assets or return on equity. Slightly negative correlation was identified in the case of leverage (indebtedness): the higher the debt, the worse was the explanatory power of the non-financial report. When running significance tests for relations between NFR and enlisted "hard" variables, we found that these relations are in-significant significant relations were only between financial ratios. We claim that the value on non-financial reporting is not yet recognized by managers and other corporate stakeholders in the Czech Republic.

5. CONCLUSION, LIMITATIONS AND FURTHER RESEARCH

The analysis of the published annual reports of companies in Czech beverage industry shows the recent stage of financial and non-financial reporting and contributes to the research stream of non-financial reporting analyses in the Central and Eastern Europe

The study shows that in the Czech Republic during the period of investigation the non-financial reporting measures are independent on profitability indicators – both ROE and ROA. However, as it concerns association of individual categories of non/financial reporting, the highest association was identified in the area of comments on plan fulfilment and outlook for the next year. The lowest score denoted relations with suppliers and, very surprisingly, also sponsorship and donations. We assume that this is because the companies are predominantly SMEs, that are known in their respective areas of operation and thus, do not have to strive to gain their legitimacy through influencing their neighbourhood environment.

The biggest limitation of our study stems essentially from the used method. Because the scores were assigned to individual categories subjectively, there was space for human error. Misspecification in scoring may bring error to the whole measurement process and distort interpretation of results.

Further studies should be continued on sample of medium sized and large companies from food and beverage industry and their link to agricultural sector and their regional impact.

Acknowledgments

This paper was prepared with the support of the Anglo-American University, z.ú. Unit 3 – Research. The authors also acknowledge the support of Research project IGA VŠFS "Integrated reporting and its place in condition of business in CR" funded by the institutional support for long-term strategic development of research organization University of Finance and Administration, Prague.

BIBLIOGRAPHY

Blažková, I, & Chmelíková, G, (2015)The Impact of Import Competition on the Development of Market Concentration in the Czech Food and Beverages Industry, *Proceedings ICABR 2015, X. International Conference on Applied Business Research,* September 14–September 18, 2015. Pp. 129–135.

Chmelíková, G. (2011). Framework of performance measurement system for Czech small breweries. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 59(7), pp. 167–176.

Cuganesan, S., Guthrie, J. and Ward, L. (2010).Examining CSR disclosure strategies within the Australian food and beverage industry. *Accounting Forum*, 34(3–4), pp. 169–183.

Deegan, C. (2002). Introduction: The legitimising effect of social and environmental disclosures–a theoretical foundation. *Accounting, Auditing & Accountability Journal*, *15*(3), 282–311.

Deegan, C. (2013). *Financial accounting theory*. McGraw-Hill Education Australia.

Demski, J. S. (1973). The general impossibility of normative accounting standards. *The Accounting Review*, *48*(4), 718–723.

Gray, S. J. (1988). Towards a theory of cultural influence on the development of accounting systems internationally. *Abacus*, *24*(1), 1–15.

Gray, R., Owen, D., & Adams, C. (1996). *Accounting & accountability: changes and challenges in corporate social and environmental reporting*. Prentice Hall.

Guthrie, J., Cuganesan, S. and Ward, L. (2007).Extended Performance Reporting: Evaluating Corporate Social Responsibility And Intellectual Capital Management. *Issues In Social And Environmental Accounting*, 1(1), pp. 1–25.

Hřebíček, J., Faldík, O., Kasem, E. and Trenz, O. (2015).Determinants of Sustainability Reporting in Food and Agriculture Sectors. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 63(2), pp. 539–552.

Hřebíček, J., Popelka, O., Štencl, M. and Trenz, O. (2012).Corporate performance indicators for agriculture and food processing sector. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 60(4), pp. 121–132.

Integrated reporting IIRC 2013, www.theiirc.org

Kasem, E., Trenz, O., Hřebíček, J. and Faldík, O. (2015).Key Sustainability Performance Indicator Analysis for Czech Breweries. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 63(6), pp. 1937–1944.

Muchlinski, P. (1996). A Case of Czech Beer: Competition and Competitiveness in the Transitional Economies. *The Modern Law Review*, 59(5), pp. 658–674.

Putićová, M. and Mezera, J. (2008).Food industry in the Czech Republic – with regard to labour force development. *Agricultural Economics (Zemědělská ekonomika)*, 54(No. 6), pp. 286–292.

Riahi-Belkaoui, A. (2004). *Accounting theory*. Cengage Learning EMEA.

Věžník, A. and Bartošová, L. (2012). Selected regional geographical differences of the Czech Republic agriculture, after the transformation processes. *Agricultural Economics (Zemědělská ekonomika)*, 50 (No. 5), pp. 207–216.

Williams, S. M. (1999). Voluntary environmental and social accounting disclosure practices in the Asia-Pacific region: An international empirical test of political economy theory. *The International Journal of Accounting*, *34*(2), 209–2.

Appendix 1

Table 6. Production of bear and market share in 2013 and 2014

	2013			2014		
	Production of beer (hl)	Market share (%)		Production of beer (hl)	Market share (%)	
Plzeňský Prazdroj	7,777,680	40.3		8,569,200	43.6	
Staropramen	3,140,000	16.3		3,223,100	16.4	
Heineken	2,436,626	12.6		2,451,100	12.5	
Budvar	1,339,573	6.9		1,457,000	7.4	
Lobkowicz	970,000	5.0		1,022,900	5.2	
LIF	788,468	4.1		829,900	4.2	
PMS Přerov	757,492	3.9		760,000	3.9	
Bernard	231,073	1.2		265,000	1.3	
Others		*6,7*	*93.3*		*5,5*	*94,5*

INFORMATION ON RISKS IN THE INTEGRATED REPORTS OF THE LEADING CAPITAL GROUPS IN THE FUEL SECTOR IN POLAND

Ewa Wiktoria BABUŚKA
Cracow University of Economics, Poland
babuskae@uek.krakow.pl

Abstract
Integrated reporting is a new area of reporting, which has been developing in Poland for several years. These reports are prepared mainly by large companies. The article gives information on risks presented in the integrated reports of two largest capital groups of the fuel sector in Poland, i.e. PKN ORLEN S.A. and LOTOS S.A. These groups were one of the first in Poland to start preparing integrated reports. Article is an attempt to answer the following questions: 1) are integrated reports are needed as a source of comprehensive knowledge about the company, in particular about its risks, 2) whether integrated reporting has a chance for development, or is it a temporary fashion that will pass in the near future. In particular, an analysis of the risks that could be identified in the integrated reports of the two Polish Capital Groups in 2014–2016 was made. The analysis allowed to answer the first question in the affirmative, but it also highlighted some disadvantages of integrated reporting. The second question can be answered that integrated reports give a general picture of risks, because they are specific to each group. The article describes sustainable development and corporate social responsibility, marking the beginning of integrated reporting. On the basis of literature and related legal acts therefore the article refers to existing research and adds the author's contribution to them. Also the case study method was applied. The results were visibly presented and interpreted, and the right conclusions were drawn. The added value of this work is dealing with integrated reports as a new research field, and more precisely with the risks disclosed in such reports of the two leading Polish capital groups. The risk issues disclosed in the integrating reports have been rarely undertaken so far in international surveys.

Keywords: *corporate social responsibility reporting, corporate financial statement*, *integrated reports*, *risks*, *sustainability reporting*

1. INTRODUCTION

In order to keep running in the 21st century, enterprises cannot only be focused on maximizing their profits, without taking into account various factors, including the expectations of clients and potential investors, that is, they must agree to operate under risk conditions. This does not mean, however, that the enterprises are defenceless and have to passively watch the risk. The risk response is the company's reporting and specific actions taken as a result of the analysis of financial statements. A new type of reporting is integrated reports providing financial and non-financial information. Researchers found that there were several stages in the historical development of reports on sustainable development and corporate social responsibility. In the 1970s, social reports were sometimes added to financial reports of enterprises in Western countries. In the 1980s, environmental reports on emissions and waste were put in the foreground. In the late 1990s, social and environmental issues were included in one report, publishing it alongside financial reports. This could have triggered the voluntary setting of standards by the Global Reporting Initiative (GRI), which has become a global body for standardizing sustainability reporting. However, the standards did not remove significant differences as to the content and quality of the sustainability reports being prepared. In the literature, there are studies concerning the issues of CSR data reporting, however, these publications relate to reporting development or quality assessment of reports (Fifka 2013). In the historical perspective, Fifka (2012) has been doing a chronological review of empirical research in the field of sustainability reporting. Taking as a starting point the literature from the 1970s. Fifka (2013) presents the results of a review of empirical research on corporate social responsibility in terms of applying different methodological approaches by scientists from different regions of the world and thus

achieving different results. Hahn and Kühnen (2013) limit themselves to newer scientific publications on sustainability reporting from 1999 to 2011 and provide an up-to-date research picture of sustainability and CSR reporting. The stages of developing this reporting are illustrated in Figure 1.

Figure 1. The development of corporate social responsibility reporting concepts

Financial reporting	Financial reports plus sometimes social reports	Financial reports plus social and environmental reports	Financial reports and the first, additional reports on social and environmental issues published alongside financial reports	Financial Reporting Corporate governance Non-financial information Development of social responsibility reports	Integrated reporting
1960	1970	1980	1990	2000	2010

Source: Fifka (2012, 5), Jaworska, (2011, 577)

Integrated reporting was put into practice for the first time in the 21st century. The earliest reports were prepared by a Brazilian company Natura in 2002, and by Danish companies Novozymes in 2002, and Novo Nordisk in 2004 (Eccles, Krzus, Ribot, 2015, 33). Creating the theory of integrated reporting can be divided into four stages. The first (2002–2004) is called "business experimentation". The second stage, called the "expert comment", is dated between 2005 and 2011. During this time, experts and scientists tried to establish, based on observation of corporate practices, the basic assumptions of integrated reporting. The beginning of the third stage of the so-called "Codification" took place in 2011, in which the Integrated Reporting Committee, with the participation of accountants, investors and enterprises, began work on the development of integrated reporting standards. The final result is the Integrated Reporting Framework published in 2013. The last stage, called "institutionalization", lasting from 2013 to today, is characterized by exerting influence on market and regulatory environments.

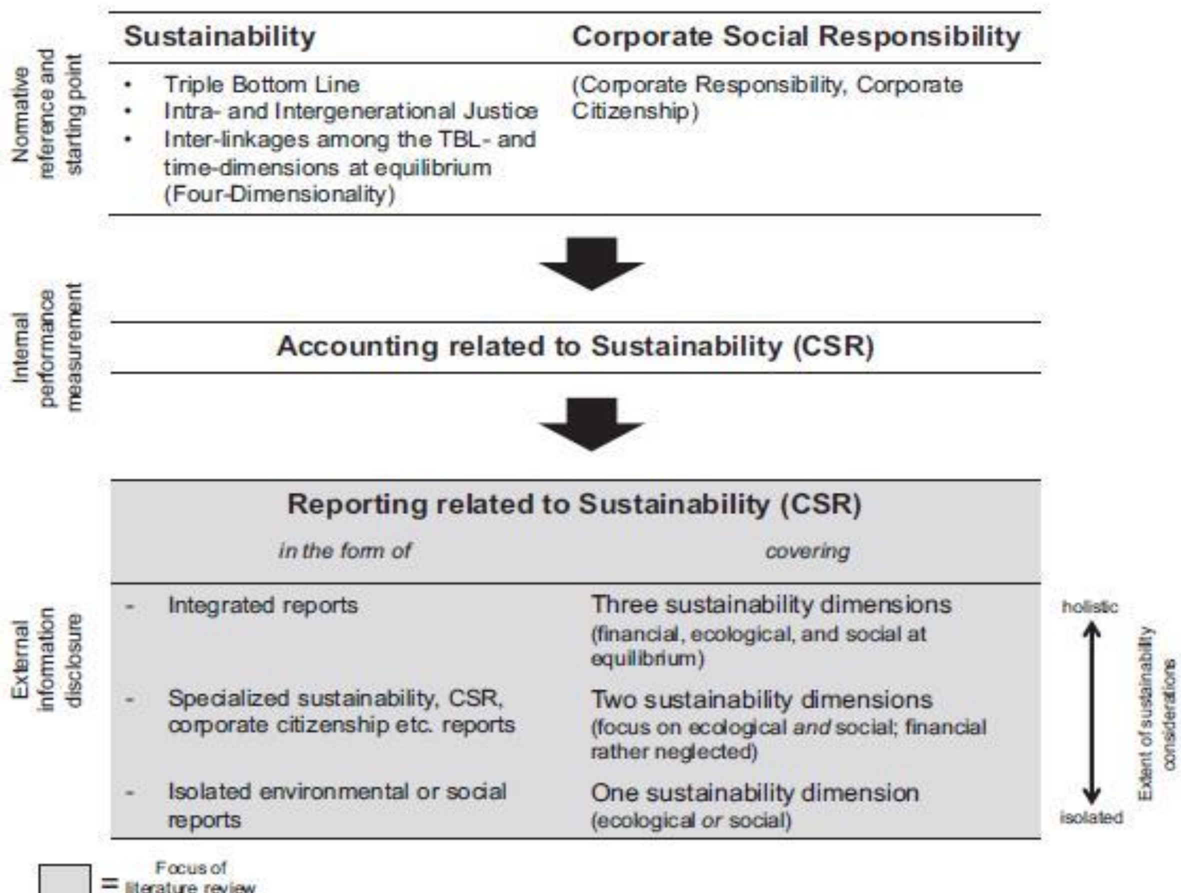
As a result of these activities in 2014, a European Union directive on non-financial information was developed in 2014 (Eccles, Krzus, Ribot, 2015, 8-9). The directive was published in the EU's Official Journal on November 15, 2014 (Directive 2014/95 / EU). It regulates the scope of mandatory information that should be included in the integrated report, and it is binding for enterprises that employ more than 500 employees. The information shown in the report should be prepared according to a relevance principle. This means that the non-financial information provided is necessary for a proper assessment of the entity's situation, its results and development. The benefits of implementing the directive seem to be feasible, and include, above all, improved reputation, increased company transparency, global competitiveness, trust and overall attractiveness for clients and investors (Krasodomska 2017, 105). The dynamic development of integrated reporting took place in 2013 after the publication of the aforesaid Integrated Reporting Framework. They indicate that integrated reports are to result from integrated thinking by the organization about dependencies, relationships that exist between different operational and financial cells. Such thinking should also characterize the unit in relation to the capital that he uses or influences. The basic framework for integrated reporting is indicated in the framework structure: various resources that the organization uses in its activities, business model implemented by it, creating value over time (Bek-Gaik, 2017, 12).

The purpose of the article is to present information on the risks disclosed in the integrated reports of the leading capital groups of the fuel sector in Poland: PKN ORLEN S.A. and LOTOS S.A. An attempt was made to answer the questions: whether integrated reports are needed as a source of comprehensive knowledge about the company, especially about its risks, and if there is sufficient information about the risks disclosed in integrated reports. The main content of the article will be preceded by a description of the development of sustainable and corporate social responsibility that marked the beginning of integrated reporting. The applied research methods are literature studies on corporate social responsibility and integrated reporting including related legal acts, analysis of the scope and content of integrated reports in terms of revealed risks, case studies and inference.

2. BUSINESS SOCIAL RESPONSIBILITY – A CAUSE OF INTEGRATING REPORTS

The integrated reports are one of the form of sustainability reporting because they are covering three sustainability dimensions i.e. financial, ecological and social at equilibrium. Sustainability reporting is now a leading topic that focuses the attention of practitioners and scientists. This reporting is considered an important factor for the sustainable development of corporations. Hahn and Kühnen (2013) provided a review of 178 articles dating from 1999 to 2011 from journals related to business, management, and accounting. Their goal was to identify what determinants of sustainability reporting were investigated in the literature and to identify inconsistencies, gaps and possibilities for future research. They paid attention to factors affecting the adoption, the scope and the quality of reporting. On the basis of their findings, they gave the often missing link to the theory (legitimacy, stakeholders, signalling and institutional theory). They also discussed possible future research topics by clarifying gaps and underexposed topics in the area of regulation and management as well as the quality of reporting and perception of stakeholders. Thus, the review of literature aimed to reveal trends, relationships, inconsistencies and gaps in literature in order to organize and evaluate existing work in a specific field. They defined the basic terminology to establish an understanding of the concepts involved, and they presented the framework of basic terminology and concepts (Fig. 2).

Figure 2. Overview and relations of basic concepts and terminology of sustainability reporting



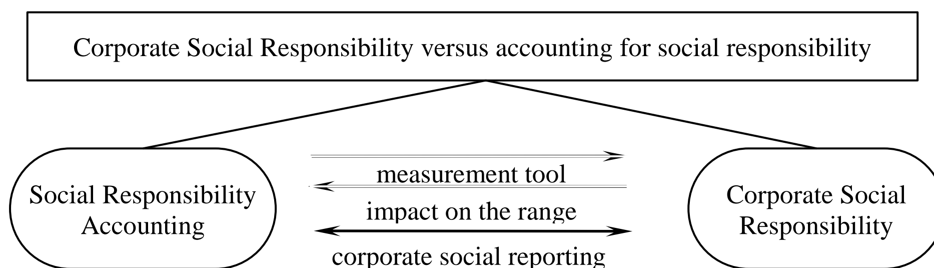
Source: Hahn, R., Kühnen, M. (2013, 7)

The figure indicates that the starting point for any consideration on sustainable development or CSR reporting lies in the superior (normative) concepts of sustainable development and CSR. They quoted the latest definition of CSR by the European Commission and its similar definition of ISO 26000 and stated that sustainable development and CSR are consistent concepts. Adopted standards are the basis for measuring the performance of corporations in the field of Sustainability (CSR) through accounting related to them. But the accounting is mainly used for internal performance and measurement, which

is why external reporting is the most important related to Sustainability (CSR) and it focuses the attention of theoreticians and practitioners.

At present, the role of non-economic factors affecting the business and success of the business unit is greatly influenced. The answer to this is the emergence of a new trend in accounting called accounting for social responsibility. It is an economic measurement system aimed at creating a reliable, multidimensional (financial and non-financial) picture of the entity's operations and the environment in which it operates, enabling reliable assessment, both its financial effectiveness and impact on various stakeholders (Łada, 2016, p. 12). The main purpose of accounting for social responsibility is the settlement of an economic unit from external activities in the social and ecological field. The concept of corporate social responsibility (CSR) is also derived from this trend. The relations between them are illustrated in Figure 3.

Figure 3. Relations between corporate social responsibility and social responsibility accounting



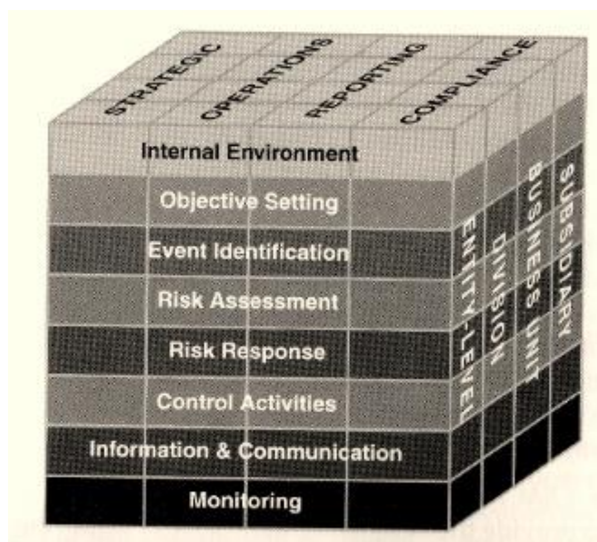
Source: Samelak, J. (2013, 35)

The final effect of CSR accounting is the CSR report. It gives information on the organization's management in such aspects of its functioning as social responsibility, ethics and ecology (Mikulska and Michalczuk, 2014, 213).

3. ENTERPRISE RISK MANAGEMENT MODEL AND RISKS IDENTIFIED THANKS TO THE INTEGRATED REPORTS

Risk management is an essential element of strategic management of each unit. It is defined as a permanent, coherent and own-structured process adopted on the scale of the entire unit, based on which the management solves problems related to uncertainty and accompanying threats and opportunities, thus increasing its ability to create company added value (ERM PP, Jan. 2009, www.theiia.org/go/). Maximizing the value occurs when the management, while setting the company's strategy, maintains an optimal balance between objectives and risks and ensures effective and efficient allocation of resources to achieve the assumed goals. The COSO-ERM model (called COSO II) is the leading model on which the management of economic risk can resist. The framework of the COSO-ERM model and its components is shown in the Figure 4.

Figure 4. COSO II – Enterprise Risk Management Framework



Source: Moeller R. R. (2005, 112) and Moeller R. R. (2004, 237)

This model consists of eight elements: internal control environment, goal setting, event identification, risk assessment, risk response, control activities, information and communication, monitoring (http://www.pikw.pl and http://www.coso.org). The reason for developing the ERM model was the growing need to create assumptions and a conceptual framework for an effective risk management system in an enterprise. Risk management according to COSO II includes:

- Determination of risk appetite and strategy of operations – the management considers the company's vulnerability by assessing possible strategies of actions, setting goals related to the chosen strategy and establishing mechanisms that will help manage related risks,
- Responding to risk – risk management facilitates the selection of appropriate risk responses out of the options that are avoiding, reducing, dividing and accepting risk,
- Reducing threats and loss of activity – companies using more potential to identify potential threats reduce them and related costs and losses,
- Identifying and managing various types of risk – entities deal with many related risks in different areas of activity, and risk management facilitates the prevention of these multiple risks,
- Using opportunities – by considering the full range of potential events, management is predisposed to identify and actively pursue opportunities,
- Proper allocation of capital – receiving reliable information on risk enables effective assessment of capital needs and improvement of its distribution (COSO ERM – Integrated Framework, Executive Summary, 2004, 1).

The approach to risk management processes helps the management achieve its objectives, good financial results and prevent the loss of resources in the company. Also, it contributes to reliable reporting, compliance with legal regulations and other applicable regulations, maintaining the company's strong position in the market, increasing value and developing the company. Therefore, a risk-based approach in company management allows maintaining the chosen course and avoiding possible dangers threatening its development and continuing operations.

Integrated reporting in the literature is defined as a holistic approach to organization reporting. This approach allows all stakeholders to understand how the organization really works and what the results of its operations are. In integrated report, financial and non-financial information is combined in one report. The dynamic development of this reporting contributes to the growing interest in integrated reports. That is why it is important to ask what information these reports contain and what risks the integrated report informs about. From the analysis of the literature on the subject, the risk can be divided into: strategic, project, operating and legal.

Interpretation of the concept of **strategic risk** is quite extensive and varies depending on the accepted area of the scientific discipline (Borowski, 2015, 16). According to Borowski the authors define strategic risk differently as, for example M. Porter defines it as a risk of failure to achieve the goals included in the strategy. Another definition by M. Frigo and R. Anderson defines strategic risk as external and internal factors that may potentially be an obstacle in achieving the assumed strategic goals. The first factors are related to the environment in which the risky strategies are implemented, while the second refer to the management process. Strategic risk is associated with long-term activities related to making business decisions and their implementation. Proper recognition of these risk factors early allows the business unit to respond correctly. It also helps in making the right strategic decisions and reduces their negative effects. Strategic risk can take many forms that are different from such known threats as the failure of a company takeover transaction or the launch of a new product on the market. Decisions made with the awareness of strategic risk are combined with a lack of knowledge about future results.

Project risk can be classified according to three factors: time, costs and quality or function. It is defined as the possibility of developing a project in which planned dates of its completion, costs or specifications are exceeded. The reasons for the design risk may be external, resulting from global political conditions or regulation of state institutions. Internal reasons include the way of project planning and the potential of employees i.e. their knowledge, experience or motivations. The company has no influence on external factors, but through the risk analysis of the project can adapt to the prevailing conditions to minimize its effects. The law can be an example. The entity, knowing about high costs related to the implementation of the project, may discontinue it or create a financial reserve. In the risk analysis of the project, the information flow is important, allowing to specify goals and intentions. Another key factor is the adjustment to the surrounding environment, which allows better preparation for unforeseen events. The development of preventive actions is also connected with this. Identification of project risk brings knowledge about the risks resulting from its implementation. Thanks to this, it is possible to make the right decision and avoid financial losses (Jędrych, Pietras, Szczepańczyk, 2012, 93–97).

Operational risk according to the Basel Committee was defined as the risk of losses arising as a result of improper or erroneous operation of the process, people and systems or the impact of external events. It is related to the functioning of the enterprise, and its identification is one of the main management tasks. In the process of operational risk management, it is important to determine the role of management and individual employees. The management should know about the most important risks and ensure an adequate level of knowledge about them within the company. Employees should inform management of new risks or failure of applied methods to reduce operational risk, so it is important to constantly monitor it. Significant in managing this risk is not only a single threat, but also a risk map prepared by the unit, consisting of all events causing its occurrence. The main features of operational risk are: the difficulty of measurement and analysis, close connection to the company's operations, growth along with the development of the company (Zawiła–Niedźwiecki, 2013, 71–82). There are many methods of managing operational risk in an enterprise. One of them is the division into three phases: passive, defensive and active. The passive phase is characterized by the identification of risk by defining it and determining the boundaries of the areas of occurrence. Then you determine your risk appetite and set goals, and then choose the risk measurement method. The final step of this stage is the report. In the defensive phase, the risk and the reasons for its occurrence are analyzed. Daily control is also undertaken and current priorities are set. In the last phase, the risk is optimized and the operations related to the operational risk are evaluated (Cruz, 2002, 193–194).

In the literature **legal risk** is variously defined. The Basel Committee defines it referring to the contract, the terms of which will not be executed due to improper documentation or legal reasons. From a different definition follows that the legal risk is connected with the possibility of incurring losses as a result of running a business that goes beyond the relevant legal and regulatory framework and includes the impossibility to enforce the terms of the contract. The commonly used definition of legal risk is to define it as a threat resulting from the application and observance of the law in the

company's operations. It concerns the field defined by various regulations. You can include civil law, a commercial law code, fiscal law or banking law. As a result, legal risk management requires a lot of knowledge in various fields. Downplaying the sources of this risk or failure to comply with the regulations may lead to the bankruptcy of the unit and its managers may be prosecuted. The direct causes of legal risk are: changes in legal regulations, lack of regulations or existence of unclear and ambiguous regulations, excessive normalization of a certain section of practice limiting economic freedom, faulty identification of legislative needs, faulty editing of the legal act, the indolence of the authorities in the application of law and the enforcement of judgments and decisions, diversified transaction rules or lack of transactions, irregularities in the building of contracts. The cost of legal risk are losses related to criminal, civil and administrative liability as well as loss of reputation (Kuziak, 2008, 92–98).

4. PRESENTATION OF RISKS ON THE BASIS OF INTEGRATED REPORTS OF CAPITAL GROUPS ORLEN SA AND LOTOS SA

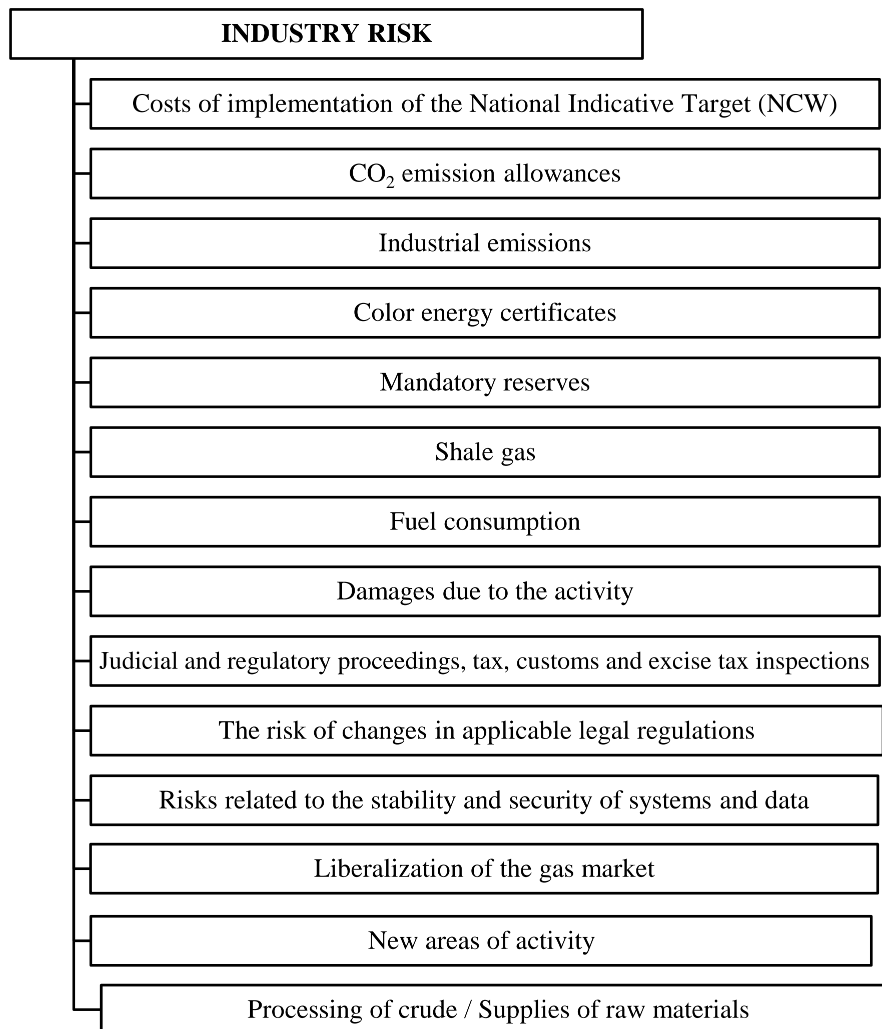
Integrated reports are new area of reporting, which has been developing in Poland for several years. They are prepared mainly by large companies. In this part of the paper two companies will be analyzed in this respect, i.e. the ORLEN Group and LOTOS, which were among the first to prepare integrated reports. In 2014, PKN ORLEN prepared a summary of data and information on the capital group, but in its form it was not an integrated report yet. However, it informed about threats that were analyzed below. The market risk of PKN ORLEN presents Figure 5.

Figure 5. Market risks in PKN ORLEN in the years 2014–2015

Source: Integrated reports of PKN ORLEN for the years 2014 and 2015

The source of market risk is changes in interest rates, foreign exchange rates and commodity prices. It can be specified in detail that commodity risk occurs when prices of CO_2 allowances, refining margins or oil prices change. On the other hand, the occurrence of currency exchange risk is related to transactions made in a foreign currency. Another risks to which the company is exposed are the liquidity risk and credit risk. The ORLEN Group took out many loans and issued bonds and eurobonds. Industry risk occurs in many areas, as illustrated in Figure 6.

Figure 6. Areas of industry risk in PKN ORLEN in 2014–2015

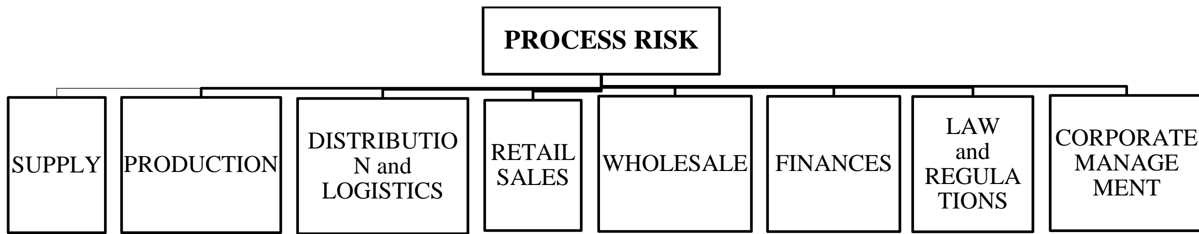


Source: Integrated reports of PKN ORLEN for the years 2014 and 2015

Industry risk is caused by the presence of informal economy in the fuel market or disturbances in crude oil processing as a result of irregular deliveries. A new source of industry risk is the directive in force since 2016, introducing stricter standards of carbon dioxide, dust, nitrogen and sulfur emission than previously. Mandatory reserves increase the costs of their storage, which affects the immobility of some cash. The opening of the ORLEN Group to new types of operations is a source of many risks that may expose the company to large losses.

In the ORLEN Report for 2016, the risks were classified into three categories: strategic risk, project risk and process risk. The first of them includes assumptions related to strategic goals, which are inconsistent and unrealistic and sometimes change. Inadequate division of tasks between organizational units and the lack of a decision center are other sources of risk. The lack of internal cohesion, accidents at work and other risks also contribute to the emergence of strategic risk. Project risk refers to poorly estimated project costs, time of its implementation or failure to complete it. Also incorrect division of activities and lack of IT support affect the increase of project risk. The process (operational) risk, applies to many areas of the ORLEN's operations. The places of its creation are shown in Figure 7. This risk arises in the implementation of crude oil supplies, inadequate planning and management of repairs in the production area or failure of logistics infrastructure. It is influenced by agreements with customers concluded on bad conditions, unethical conduct of employees and an unmodified operational planning model.

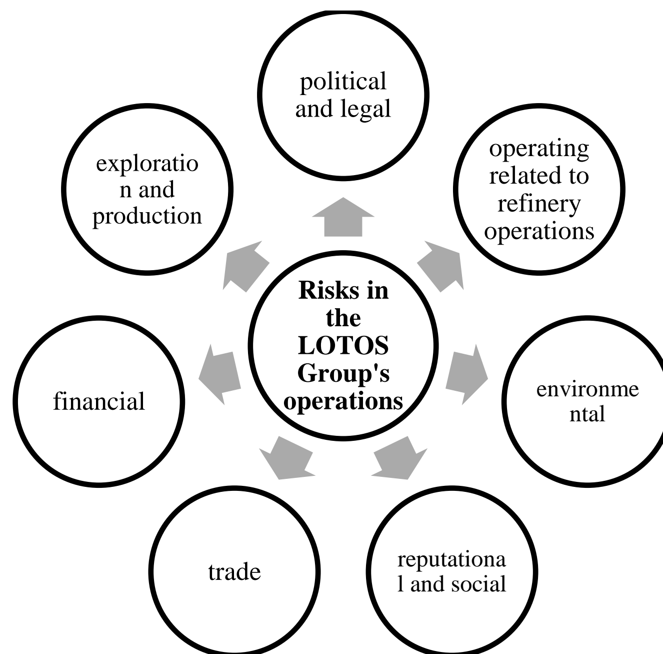
Figure 7. Areas of process risk in PKN ORLEN in 2016



Source: based on the integrated report of PKN ORLEN 2016

Risks in the integrated reports of the LOTOS Group are divided into four areas: operational, strategic, financial and reputation & compliance risk. However, a more detailed classification of risks affecting the LOTOS Group was made, as illustrated in Figure 8.

Figure 8. Basic groups of risks in the operations of the LOTOS Group



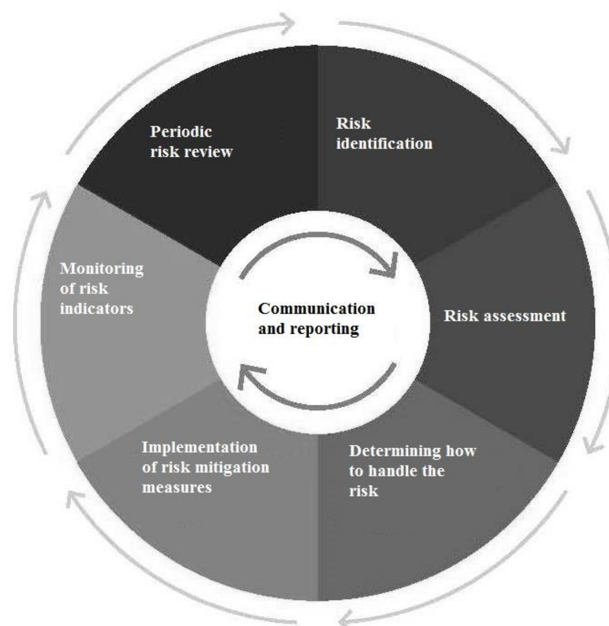
Source: Integrated report of the LOTOS Capital Group for 2014

The source of political risk for the company is the ongoing Ukrainian-Russian conflict. Crude oil is supplied for production also from Russia and a prolonged dispute and sanctions imposed on Russia may affect oil prices and supplies. Legal risk is mainly related to the ever-changing law and the need to adapt to EU standards. The lack of unambiguous regulations for the oil sector is another reason for this risk. The sources of operational risk are possible large failures that could permanently damage the infrastructure and cause financial losses. Another is the risk associated with employees, mostly with the probability of an accident. Environmental risk arises in connection with the limits of CO_2 emission allowances and is related to the production activity. Reputational risk is associated with the perception of the company. Factors such as deterioration of the industry's reputation are independent from the company and can not be changed. However, the company has an impact on its image mainly through activities related to normal operation. Here you can include customer service, professionalism of employees or timely repayment of company's obligations. Trading risk results from the possibility of disrupting supplies, changes in margins realized on the products' sale and the growth of the informal economy. The financial risk is related to the ongoing operations of the company. The following risks can be included: currency, credit, debt service costs. The source of financial risk may also be unfavorable changes in tax regulations or their interpretation and changes in interest rates. One of the most important financial risks is the risk of losing liquidity. It may come

true as a result of improper adjustment of payment streams of receivables and liabilities. It is also influenced by the inadequate level of business financing. The exploration/production risk is directly related to the industry in which the LOTOS SA operates. It concerns the estimation of resources and reserves of hydrocarbons or incorrectly conducted wells that have no resources. It is related to a possible failure caused by infrastructure use or its improper use. This risk is directly connected with the next ones related to sea collision, oil spill or fire. The result of these risks is production limitation, employee death or environmental contamination. Compliance risks relate to ensuring compliance of the LOTOS operations with the applicable regulations. They are related to all areas of the Group's operations.

The ERM system in the PKN ORLEN Group is the main tool to help identify and minimize the risk. The Audit, Control and Corporate Risk Management Department is responsible for the proper functioning of this system. Its tasks include coordinating the risk management process in all company's cells. The key tasks in the CRM System are following: The Management Board of PKN ORLEN – monitoring of the CRM System and acceptance of risk assessment for the ORLEN Group/Company; Audit Committee of the Supervisory Board of PKN ORLEN – monitoring of the CRM System; Office of Audit, Control and Corporate Risk Management – coordination of CRM process and provision of tools and methodological support for process participants; Owners of risks – managing the main risk elements; Owners of processes – risk assessment at the level of processes and coordination of the self-assessment process of control mechanisms; Control owners – supervision over the implementation of control activities in the processes in which they participate and self-assessment of control mechanisms; Employees of the ORLEN Group – risk identification and providing information on potential risk to the Audit, Control and CRM Department. LOTOS Capital Group also uses the ERM model. Due to the activity in the industry burdened with many risks, the LOTOS is strategically approaching minimizing risks. One of the effects of this approach is the Corporate Risk Management System introduced in 2011. Figure 9 shows the main elements of this system.

Figure 9. The main elements of risk management at the LOTOS Capital Group



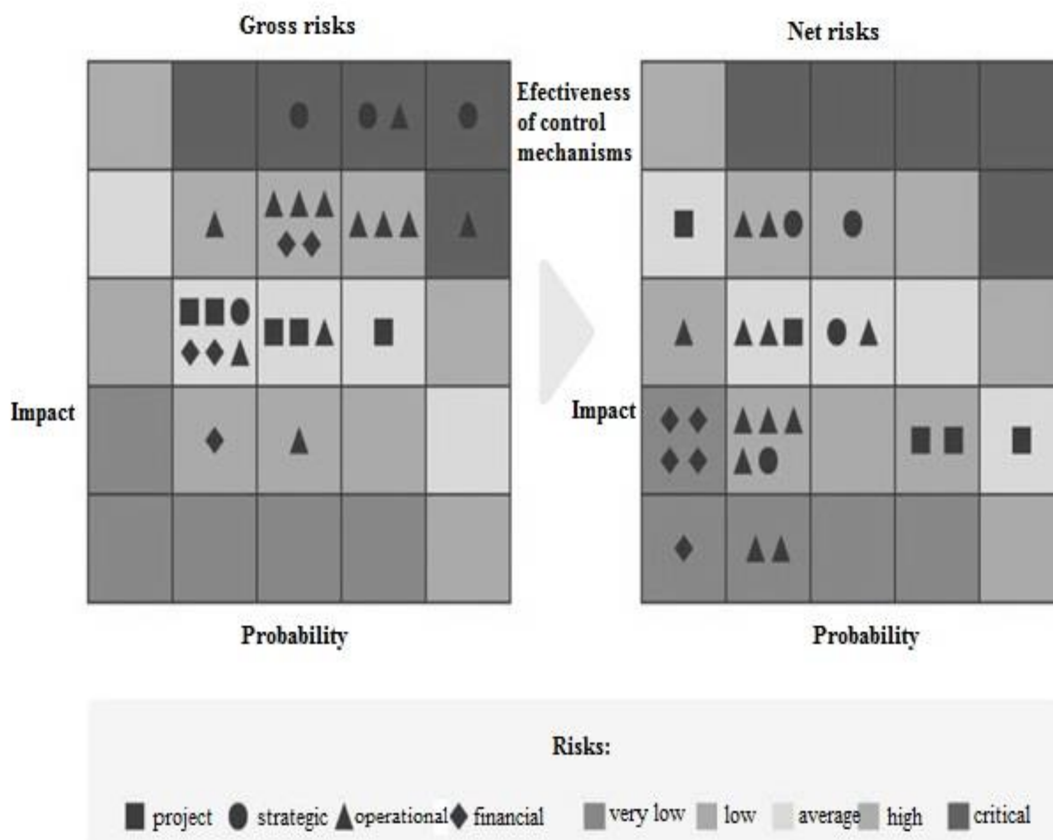
Source: Integrated report of the LOTOS Capital Group for 2015

The CRM Committee is responsible for its proper functioning. In analyzing and minimizing the occurrence of threats, a risk management procedure has been introduced. Risks are recognized as a result of operations and are related to operational and strategic goals. Then, these risks are assessed

in two time periods: annual and long-term. Next, they are analyzed in order to be assigned to the appropriate management method and the application of appropriate control mechanisms. Also for risks that have been marked as significant, a management card is additionally made. The risk monitoring is helpful in the ERM system, which is carried out at least twice a year in the LOTOS Group. Then, the risks are updated and verified. Each stage of the Group's activity is covered by the process of standards of communication and reporting of the results of implemented activities, which causes the occurring risks to be quickly identified.

As a result of the ERM system introduced in the ORLEN Group, risk areas are controlled and updated at least once a year. The activities undertaken within the framework of the ERM are the comparison and assessment of the gross and net risk. The gross assessment consists in estimating the risk value when no control mechanisms are applied or any preventive actions have been taken. The net assessment takes into account the above-mentioned factors. Figure 10 presents a map of risks estimated on the basis of these assessments.

Figure 10. Risk map in the ORLEN Capital Group

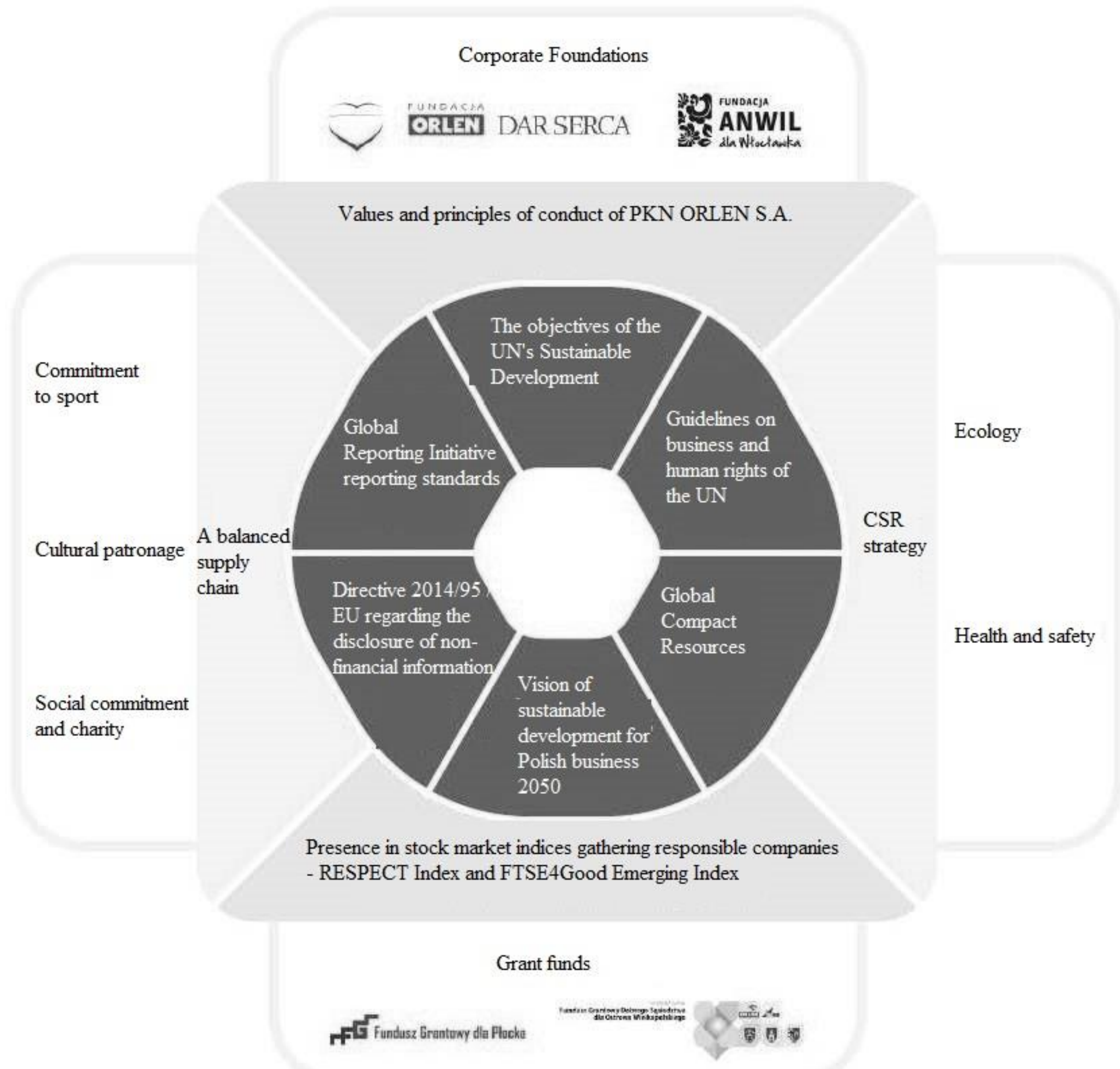


Source: Integrated report of the PKN ORLEN Capital Group 2016

Risk management is a continuous and changeable process, caused by changes in the economic environment. The Department of Audit and Corporate Risk Management is responsible for the coordination of the process and for advising all involved in the process.

The image of the company in today's world, where entrepreneurs are struggling with strong competition on a daily basis is one of the important factors. The answer, and at the same time a way to reduce the image risk, is corporate social responsibility. Responsible business, management and development must be sustainable. Only such a strategy contributes to lowering risks and increasing trust in the company. The areas in which the PKN ORLEN Capital Group implements the aforementioned strategy are shown in Figure 11.

Figure 11. Areas of corporate social responsibility in the ORLEN Capital Group

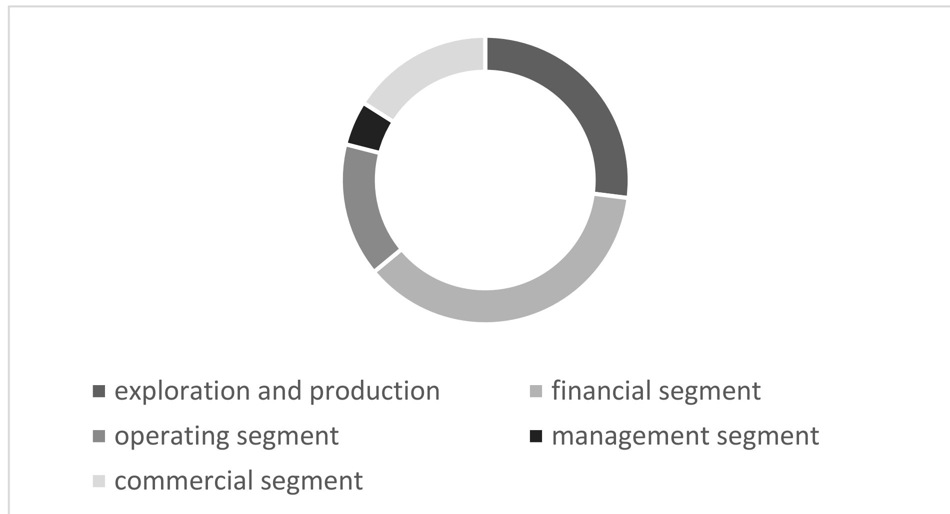


Source: Integrated report of the PKN ORLEN Group for 2016

ORLEN is aware of a large impact on the environment. Since 2011, it has been applying the UN guidelines on business and human rights. As part of CSR, ORLEN uses social sponsorship through involvement in sport, social issues and the patronage of culture. It also develops its activities through the ORLEN Foundation – Dar Serca (Gift of the Heart). Its main areas of activity are family orphanages, scholarship funds and educational programs. A new area within the CSR of the ORLEN Capital Group is the promotion of Polishness and national elements.

LOTOS implements the minimization of risks through: a code of ethics, OHS and environmental protection standards as well as contract standards. This system gives the LOTOS the possibility to implement the most beneficial actions in risk conditions, which is acceptable. The segments in which the LOTOS Group identifies risk are presented in Figure 12.

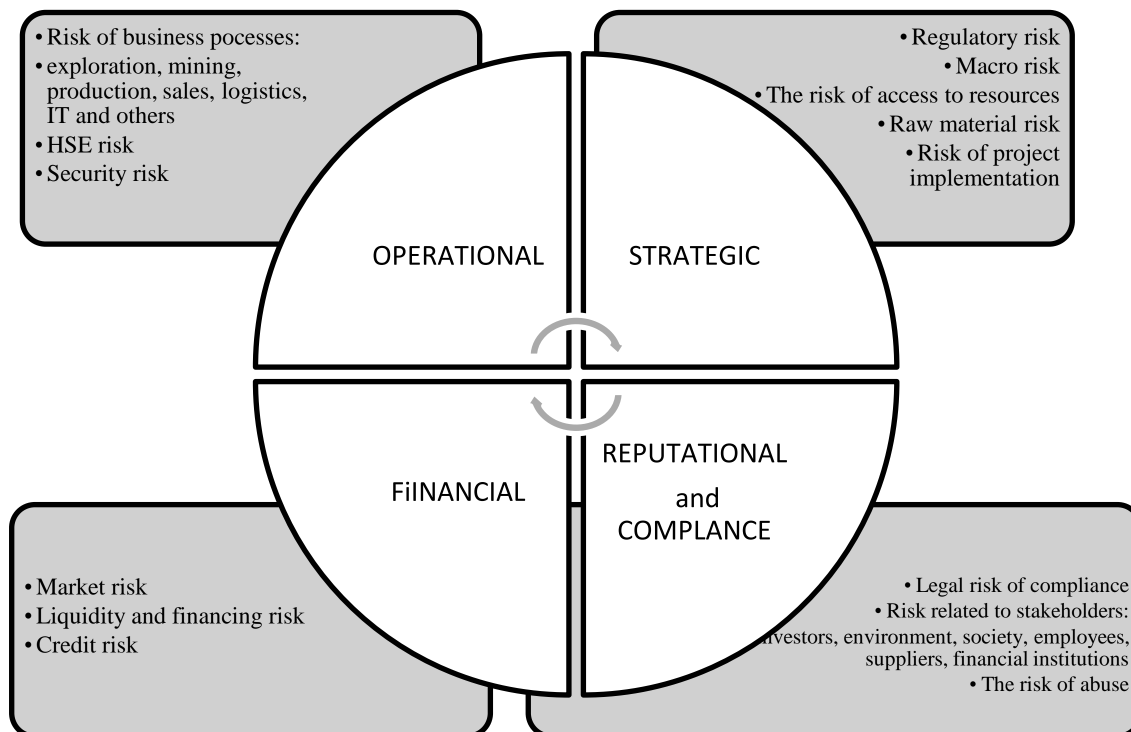
Figure 12. Key risks at the LOTOS Group broken down by business segments



Source: Integrated report of the LOTOS Capital Group for 2014

The most important types of risks for the operations of the LOTOS Group include operational, strategic, financial, reputational and compliance risks. They generate the greatest uncertainty in the implementation of the assumed operational and strategic goals. The risks presents Figure 13.

Figure 13. Key risks at the LOTOS Group



Source: Integrated report of the LOTOS Capital Group for 2016

The LOTOS also operates based on a strategy of responsible business in order to minimize reputation risk. It takes actions to exert its influence on the internal environment, that is employees and external environment, that is, stakeholders and potential investors. As part of CSR, LOTOS introduced the EFRA program, aimed at reducing accidents at work. It consists of among other on the introduction of the "I work safely" program and frequent monitoring by health and safety services. As part of the CSR, the LOTOS Foundation was founded, the purpose of which is to support initiatives related to

the development of infrastructure, especially in the areas of operation of the LOTOS Capital Group companies. The strategy of corporate social responsibility is divided into three areas: 1) social responsibility related to the observance of human rights, 2) environmental responsibility based on reducing the negative impact on the environment, 3) business responsibility based on building positive relations with stakeholders.

5. CONCLUSIONS

The answer to the question whether integrated reports are needed as a source of comprehensive knowledge about the enterprise, especially on its risks, is clearly affirmative. This was confirmed by analyzing the risks of the ORLEN and LOTOS Capital Groups. Integrated reports, in addition to financial information resulting from traditional reporting, contain important non-financial information. They inform about the areas of activity, new investments and risks to which the enterprise is exposed in its operations. They also contain information about corporate social responsibility and about activities undertaken within this area. You can find out from the reports about the company's environment, its business model and the strategy it implements. These reports contain complete information about the activity and the way it is run by the company.

It should be emphasized, however, that integrated reporting is not free of drawbacks. The first of these is that integrated reports (IR) are very extensive. In the analyzed years, the companies prepared their reports on more than 150 pages. ORLEN from year to year modifies its report causing its increase. LOTOS prepares its reports on a similar range of information. The variety of presented data in the analyzed companies is due to the fact that until today, integrated reporting standards have not been developed. This situation means that the IR content is very different and that information is relevant and irrelevant. A new weakness is that the information given to recipients and investors frees them from the ability to read and analyze traditional reports. It can be said that integrated reports contain knowledge in a nutshell about the enterprise, limited to superficial cognition. The lack of IR standards calls into question the reliability of the reports prepared. It is also important that such extensive reports require a lot of time and work. The obligation to publish these reports is also important. It is known that the data shown in the report is very general. In the modern world, even the least important information has its value, so it can be concluded that the level of detail of information contained in the IR is limited.

The second question put in the article: is there sufficient information about the risks disclosed in both analyzed integrated reports does not give an unambiguous answer as in the previous case. ORLEN and LOTOS have a well-organized risk management system because they are based on the ERM model. They also have their risks well illustrated in integrated reports. Therefore, the answer to the question may be that in the reports of both groups there is sufficient information about the risks. Integrated reports give a general picture of risks. However, the risks presented in the integrated reports of ORLEN and LOTOS are characterized by a high degree of generality. Risks in each group and company are a confidential subject, covered by the secret due to competition and the company's environment. Developed detailed risk reports are known to the management and decision makers, but they are not disclosed to the public. The answer to identified risks are related to the competition and functioning of a groups on the fuel market. Therefore, detailed and deeper research on the risks in a given company or group is difficult and even impossible. However, from the data presented on risks in the integrated reports, you can read some of the information that stakeholders need.

You can still answer the question whether integrated reporting has a chance for development or is it a temporary fashion that will pass in the near future. Analyzing the intensive development of integrated reporting, there are many indications that the reports will be mandatory for all in a few years. Observing the investors' and stakeholders' demands, the reports are integrated to meet these expectations. While analyzing the risks, it was also found that these reports contain a lot of relevant information. On their basis, you can make a more detailed analysis of the company and make the right decisions. Today it is difficult to say whether the fashion for integrated reporting will pass or

become one of the key elements in the company's reporting. On the one hand there is a huge need for quick and easily accessible information. However, on the other hand, there is a risk that the data contained in the IR will be too detailed, which may lead to the disclosure of information relevant to the company. The actions taken by the International Council on Integrated Reporting (IIRC) to develop IR standards can contribute to the development and popularity of integrated reports. Analyzing the number of integrated reports prepared in Poland for 2016 (14 reports), it can be stated that entrepreneurs are reluctant to prepare integrated reports. Their disadvantage is that only large companies and capital groups can prepare them. The multiplicity of information and the costs associated with their preparation for smaller units are inadequate to achieve possible profits. Many entrepreneurs are considering whether to prepare integrated reports due to competition, and also the meaning of their preparation. It is also important that in order for integrated reporting to evolve, it must be based on specific regulations that not only impose the obligation to prepare reports, but also determine their exact thematic scope. Part of this issue is regulated by Directive 2014/95 / EU. However, it does not specify in detail what information should be in the IR. There is also no pattern as to what the report should look like and what elements to make. In summary, integrated reports are a response to the needs of the 21st century man focused on quick information in one place. The important thing, however, is that when analyzing them, you must separate information that is relevant to irrelevant information. It is also critical that as a new form of information about the company, it does not give any guarantee as to the reliability of the preparation of these reports.

BIBLIOGRAPHY

Bek-Gaik, B. (2017), Integrated Reporting – A research review, Zeszyty Teoretyczne Rachunkowości tom 92 (148), Stowarzyszenie Księgowych w Polsce, Warszawa, 12.

Borowski, P. (2015), Strategic Risk in the Development of Enterprises in the XXI Century – Case Study, Przegląd Organizacji nr 2/2015, Wydawnictwo TNOiK, Warszawa, 16.

Enterprise Risk Management – Integrated Framework, Executive summary, September 2004, Committee of Sponsoring Organizations of the Treadway Commission – COSO, 1–16.

Cruz, M. (2002), Modeling, measuring and hedging operational risk, John Wiley & Sons, Chichester, s. 193–194.

Directive 2014/95 / EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34 / EU as regards the disclosure of non-financial information and information on diversity by certain large companies and groups, Dz. Office. UE, L 330/1.

Eccles, R.G., Krzus, M.P., Ribot, S. (2015), The integrated Reporting Movement: Meaning, Momentum, and Materiality, John Wiley & Sons, Inc. Hoboken, New Jersey USA, 33.

Eccles, R.G., Krzus, M.P., Ribot, S. (2015), Meaning and Momentum in the Integrated Reporting Movement, Journal of Applied Corporate Finanse, 27 (2), 8–17.

Fifka, M.S. (2012), The development and state of research on social and environmental reporting in global comparison, Journal of Betriebswirtsch 62, 45–84.

Fifka, M.S. (2013), Corporate responsibility reporting and its determinants in comparative perspective – a review of the empirical literature and a meta-analysis, Business Strategy and the Environment, no. 22, s. 1–35.

Hahn, R., Kühnen, M. (2013). Determinants of sustainability reporting: a review of results, trends, theory, and opportunities in an expanding field of research, www.elsevier.com/locate/jclepro Journal of Cleaner Production 59, 5–21.

Jaworska, E. (2011), Change in the approach to reporting in the context of corporate social responsibility, Zeszyty Naukowe Uniwersytetu Szczecińskiego nr 668, „Finanse, Rynki Finansowe, Ubezpieczenia” nr 41, Wyd. N. Uniwersytetu Szczecińskiego, Szczecin, 573–583;

Jędrych E., Pietras P., Szczepańczyk M. (2012), Project management, Technical University of Lodz, Łódź, s. 93–119.

Krasodomska, J., (2017) Non-financial reporting in the light on consultative processes, Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu nr 479, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław, 105.

Kuziak, K. (2008), Managing legal risk in an enterprise, Prace Naukowe Akademii Ekonomicznej im. O. Langego we Wrocławiu nr 1196, Wrocław, 92–98.

Łada, M. (2016), Legitymacy and socially responsible management accounting, Zarządzanie Nr 23, tom 2 Zeszyty Naukowe Politechniki Częstochowskiej, Częstochowa,12.

Mikulska, T., Michalczuk G. (2014), Corporate Social Responsibility Reporting, Zeszyty Naukowe Uniwersytetu Szczecińskiego nr 827, „Finanse, Rynki Finansowe, Ubezpieczenia" nr 69, Wyd. Naukowe Uniwersytetu Szczecińskiego, Szczecin, 209–219; www.wneiz.pl/frfu.

Moeller R.R. (2005), Brink's Modern Internal Auditing, John Wiley & Sons, Inc., Hob., NJ, 112.

Moeller R.R. (2004), Sarbanes-Oxley and the New Internal Auditing Rules, John Wiley & Sons, Inc., Hoboken, New Jersey, 237.

Samelak, J. (2013), Integrated report of a socially responsible company, Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, Poznań, 35.

Zawiła–Niedźwiecki, J. (2013), Operational risk management in ensuring organization continuity, Wydawnictwo edu–Libri, Kraków–Warszawa 2013, s. 55–170.

The Role of Internal Audit in Enterprise-wide Risk Management, The Institute of Internal Auditors, 2009, 1–8; http://www.theiia.org/go/

http://www.pikw.pl and http://www.coso.org).

ANALYSIS OF NON-FINANCIAL INFORMATION OF THE COMPANIES LISTED ON BUCHAREST STOCK EXCHANGE

Alexandra-Oana MARINESCU
Bucharest University of Economic Studies, Romania
alexandra.marinescu@cig.ase.ro

Abstract
The goal of this paper consists in showing the potential of the companies listed on the Bucharest Stock Exchange to publish non-financial information through a separate report towards the annual report aimed at attracting investors and creating an international image. Thus, in order to achieve this goal, companies listed on BVB, which are part of different sectors of activity, were analyzed. The case study revealed a mimetic isomorphism for drafting the reports. However, Romania is still facing the understanding of the new non-financial reporting concept.

Keywords: *non-financial reporting, Romania, transparency, companies listed*

1. INTRODUCTION

International Financial Reporting Standards (IFRS) represent nowadays a set of global accounting standards and are increasingly influencing national standards, regulations, and organizations globally. However, this referential does not include the information's concerning: the nature of intellectual and relational capital, social and environmental reporting, risk reporting (Albu et al., 2014, pg. 489–510). Globalization is an engine for new developments in non-financial information. The evolution of the concept of non-financial reporting has been defined and developed by many authors such as Bowen (1953), Fredrick (1960, pg. 54–61), Davis (1973, pg. 312–322), Elkington (1997, pg. 139–141), Carroll (1999, pg. 268–295), Contrafatto (2014, pg. 177–196) and many others. But last but not least, this concept was imposed by the society and supported by companies, (Contrafatto, 2014, pg. 177–196.).

Bowen (1953) argues that non-financial reporting refers to managers' obligations to pursue these policies, these decisions, or to follow those lines of action which are desired by the values of our society.

Fredrick (1960, pg. 54–61) shows that there is only one type of non-financial reporting to use resources and engage in activities designed to increase profits as long as they remain within the rules, namely they engage in an open and free competition, without deception or fraud.

Carroll (1979, pg. 497–505) describes non-financial reporting as a multi-layered concept that can be differentiated into four interrelated, economic, legal, ethical and philanthropic aspects. Carroll presents these aspects in a pyramid. This pyramid is made up of consecutive levels. So in order to achieve a good non-financial reporting, companies must reach all four levels in a consecutive manner.

The goal of this study consists in analyzing the Romanian companies' orientation to publish non-financial information. To achieve this goal, we have proposed the following research hypotheses: H1: Are BSE-listed companies with more than 500 employees prepared to publish non-financial information in accordance with Directive 2014/95/EU?; H2: Non-financial reporting provides the entities with future benefits for companies that operate worldwide; H3: Non-financial reporting gives transparency to the information published by the companies listed on BSE for stakeholders.

Communication of non-financial aspects was voluntary for large companies in Europe until the 2014/95/EU Directive, applicable from 1 January 2017 and OMFP 1938/2016, where the "Non-Financial Statement" was introduced.

Therefore, this aspect is also shown by KPMG in the survey conducted in 2017, showing a slight increase in the number of companies reporting information on sustainable development. More specifically, 74 companies of N100 (the first 100 companies in Romania based on turnover) publish

information on sustainable development, namely almost three-quarters (72%) of large and medium-sized companies worldwide do not include the financial risks related to climate changes in the annual financial reports.[1]

Directive 2014/95/EU becomes an impetus for companies operating in Romania and in order to align to the new requirements of sustainability and to mother company policy, companies have enforced social and environmental practices such as social and environmental reporting (SERUM).

This alignment has led to a varied literature (Spence, 2007, pg. 855–882, Call, et al., 2017, pg. 123–149, Kin Lo, et al., 2017, pg. 1–25). Although we do not know why the entities report, Spence (2007, pg. 855–882) states that there is an urgent need to disclose non-financial information. This statement is argued by Gray (2010, pg. 11–32.), who returns and states that entities are not responsible for their social and environmental impact. This concept of non-financial reporting is directly related to corporate governance that complements financial reporting. Corporate governance shows that managers' interests are in line with those of shareholders Jensen (1993, pg. 831–880.), Mehran (1995, pg. 163–184), Shleifer and Vishny (1997, pg. 737–783).

Therefore, non-financial reporting becomes an information bridge for stakeholders represented by a report. Boesso et al. (2007, pg. 269–296) and van der Laan Smith et al. (2005, pg. 123–151) presented for the first time what is an annual report. The Annual Report is recognized as a key method of communication with stakeholders by providing both financial and non-financial information, as evidenced by research, by observing variations in the quality and level of non-financial reporting within annual reports.

This documents looks at the potential of companies listed on Bucharest Stock Exchange to publish non-financial information through a separate report towards the annual report. For this reason, a case study was conducted on companies listed on Bucharest Stock Exchange (BSB). The significance of this research is given by the fact that non-financial reporting is a relatively new concept in Romania.

One of the original parts of this paper is the analysis of the reports from the point of view of all interested parties and not only from the point of view of the companies. Another original part is that the paper focuses on the industrial sector of a single country. For example, Grougiou et al., (2014, pg. 155–169) analyzes the banking sector and Prior et al., (2008, pg. 160–177) analyzes cross-industry and Chih et al., (2008, pg. 179–198) studies cross-industry.

Next, the paper is structured as it follows: the first part presents the research methodology. The second part analyzes the annual reports from the point of view of publishing non-financial information, and the third part analyzes the compliance of the annual reports with the principles of non-financial reporting. The last part includes the conclusions and limits of this study as well as future research directions.

2. RESEARCH METHODOLOGY

The reporting practices of Romanian companies were surveyed using a initial sample of 17 companies listed on the Bucharest Stock Exchange (BSE). The research is based on 2 selection indices: → BET PLUS (BUCHAREST EXCHANGE TRADING PLUS INDEX); → BET-NG (BUCHAREST EXCHANGE TRADING ENERGY & RELATED UTILITIES INDEX).

Moreover, the selection process was based on three criteria:

- companies must have over 500 employees;
- they should also have Romanian capital;
- financial and non-financial information should be public for stakeholders.

From the sample composed of 17 companies from different sectors of activity, have been selected only 15 companies as they met the above criteria. ROMPETROL WELL SERVICES SA was eliminated because the annual report was submitted at group level and the company

[1] https://home.kpmg.com/ro/ro/home/presa/comunicate-presa/2017/10/cr-reporting-2017-survey.html

"PETROLEXPORTIMPORT SA" was eliminated because it did not have Romanian capital (see Table 1). Following the analysis, it will be noticed that companies with a scope of activity such as the extraction, processing and marketing of natural resources are included in sectors such as the industrial activity sector combining utilities and services sectors (see Table 1).

The goal of this study consists in analyzing the companies' orientation to publish non-financial information. To achieve this goal, we have proposed the following research hypotheses:
H1: Are BSE-listed companies with more than 500 employees prepared to publish non-financial information in accordance with Directive 2014/95/EU?
H2: Non-financial reporting provides the entities with future benefits for companies that operate worldwide.
H3: Non-financial reporting gives transparency to the information published by the companies listed on BSE for stakeholders.

We reviewed the reports published by each company found on the BSE website and on their website. The reference year used is 2016.

The reports published and reviewed are the following:

- annual report;
- annual report of the Board of Directors;
- annual report of Directors;
- Directors' report.

Table 1. Initial sample of the research

No.	BSE symbol	Companies	MARKET	Field of activity	No. of employees-2016	Romanian capital (%)
1	TGN	S.N.T.G.N. TRANSGAZ S.A.	REGULATED MARKET	Utilities(natural gas)	4.607	58,51
2	COTE	CONPET	REGULATED MARKET	Services (pipeline transport)	1.714	58,72
3	SNG	S.N.G.N. ROMGAZ S.A.	REGULATED MARKET	Utilities(natural gas)	6.356	70,01
4	TEL	C.NT.E.E. TRANSELECTRICA	REGULATED MARKET	Utilities (electricity)	2.180	58,69
5	EL	SOCIETATEA ENERGETICA ELECTRICA SA	REGULATED MARKET	Utilities (electricity)	9.685	48,79
6	SNN	S.N. NUCLEARELECTRICA SA	REGULATED MARKET	Utilities (electricity)	2.008	82,5
7	ARTE	ARTEGO SA	REGULATED MARKET	Industrial (rubber-made products)	964	84,82
8	ARS	AEROSTAR SA	REGULATED MARKET	Industrial (aircrafts and spacecraft)	1.878	86,17
9	CMP	COMPA SA	REGULATED MARKET	Industrial (car parts and accessories)	1.954	54,6
10	ATB	ANTIBIOTICE SA	REGULATED MARKET	Pharmaceutic	1.449	66,57
11	PTR	ROMPETROL WELL SERVICES SA	REGULATED MARKET		x	x
12	SNP	OMV PETROM SA	REGULATED MARKET	Utilities (petrol))	14.769	33,21
13	OIL	OIL TERMINAL SA	REGULATED MARKET	Services (handlings)	978	59,62
14	RRC	ROMPETROL RAFINARE SA	REGULATED MARKET	Utilities (petrol))	1085	44,7
15	PEI	PETROLEXPORTIMPORT S.A.	REGULATED MARKET		8	x
16	VNC	VRANCART SA	REGULATED MARKET	Industrial (paper, cardboard and paper packages)	903	74,72
17	ELMA	Electromagnetica	REGULATED MARKET	Industrial (tools and devices for measurement, verification, control and navigation)	583	55,03

Source: own processing

The reference year chosen for reviewing the reports is 2016. The reports were taken from the companies' or BSE website and, in order to show "the compliance of the annual reports on compliance with the principles of non-financial reporting", we adapted the methodology used in the study of Guşe et al. (2014, pg. 304-340). We created a model based on scores 1–5.

In order to achieve score 5, companies must follow 3 criteria:

- to publish a sustainability report for more than 3 years;
- to have a special department for relations with investors;
- to fully comply with the six principles.

In order to achieve score 4, companies must have published a sustainability report for at least 1 year. Also, in order to achieve score 3, companies must have published non-financial information, for example, in a brochure explaining its orientation to non-financial reporting. Score 2 is obtained by companies that have published non-financial information, but this information is just listed and not explained. Score 1 was achieved by companies which have a report but not of sustainability, for example environmentally-focused, but at the same they were not updated. And score 0 was achieved by companies that do not meet any of the criteria outlined above.

3. ANALYSIS OF ANNUAL REPORTS IN TERMS OF PUBLISHING NON-FINANCIAL INFORMATION

According to the "Non-financial Information Reporting Guideline", the goal of these entities is to publish high-quality, relevant, useful, consistent and comparable non-financial (environmental, social and government-related) information so as to favor economic growth, in a sudden and lasting way and to ensure transparency for stakeholders.

Thus, besides the observance of the obligation to draw up the annual reports according to the Regulation of the National Securities Commission – CNVM no. 1/2006, we can find other intermediary reports on company websites, such as: Individual Auditors' Report in accordance with IFRS, the Revenues and Expenses Budget, Individual Report on Payments to the Government, and other reports.

The annual reports are in accordance with the Regulation of the National Securities Commission – CNVM no. 1/2006 and discloses information on the business performance of the entity, the activity from the financial year ended, information on social responsibility and environmental protection, entity strategy, risk management and information on the management of the company and shareholder structure, as well as information on the market of shares issued by entities. For stakeholders to fully understand the key components of an entity's assets structure, entities have been guided to voluntarily publish non-financial information. Thus, non-financial information makes it possible to identify and assess the essential aspects.

All information is included in a supplementary report, voluntarily drafted by companies listed on BSE, called the "Sustainability Report", "Corporate Social Responsibility Brochure (CSR)", "Environmental Report", and "Social Responsibility", see Table 2.

Table 2. Companies with mandatory reports and voluntary reports

No.	BSE symbol	Companies	Mandatory reports	Voluntary reports
1	TGN	S.N.T.G.N. TRANSGAZ S.A.	x	x
2	COTE	CONPET	x	x
3	SNG	S.N.G.N. ROMGAZ S.A.	x	x
4	TEL	C.NT.E.E. TRANSELECTRICA	x	x
5	EL	SOCIETATEA ENERGETICA ELECTRICA SA	x	x
6	ARTE	ARTEGO SA	x	
7	ARS	AEROSTAR SA	x	
8	CMP	COMPA SA	x	
9	ATB	ANTIBIOTICE SA	x	
10	SNP	OMV PETROM SA	x	x
11	OIL	OIL TERMINAL SA	x	
12	RRC	ROMPETROL RAFINARE SA	x	
13	VNC	VRANCART SA	x	
14	ELMA	ELECTROMAGNETICA	x	
15	SNN	S.N. NUCLEARELECTRICA SA	x	

Source: own processing

4. COMPLIANCE OF ANNUAL REPORTS WITH THE PRINCIPLES OF NON-FINANCIAL REPORTING

The compliance of the annual reports with the principles of non-financial reporting is determined by the following:

- compliance with the six principles of non-financial reporting performance;
- presentation of the business model;
- description of shareholder structure;
- presentation of corporative governance principles and the risk;
- presentation of entities' orientation towards social and environmental activities.

We analyzed the companies reports, and as Table 2 highlights, only six companies published on their website a sustainability report. In order to emphasize the uniformity level with the principles of non-financial reporting, these were taken into account and the six principles are:

- Publication of significant information;
- Correct, fair and easy-to-understand information;
- Comprehensive but concise information;
- Strategic and prospective information;
- Information oriented towards stakeholders;
- Consistent and coherent information.

Table 3. Scores obtained for the CSR Principles (1)

No.	Companies	Publishing of significant information	Correct, fair and easy-to-understand information	Comprehensive but concise information
1	S.N.T.G.N. TRANSGAZ S.A.	5	4	3
2	CONPET	5	4	2
3	S.N.G.N. ROMGAZ S.A.	5	4	2
4	C.NT.E.E. TRANSELECTRICA	5	4	1
5	SOCIETATEA ENERGETICA ELECTRICA SA	5	4	4
6	OMV PETROM SA	5	5	5

Source: own processing

Table 4. Scores obtained for the CSR Principles (2)

No.	Companies	Strategic and prospective information	Information oriented towards stakeholders	Consistent and coherent information
1	S.N.T.G.N. TRANSGAZ S.A.	0	1	0
2	CONPET	2	1	0
3	S.N.G.N. ROMGAZ S.A.	2	1	0
4	C.NT.E.E. TRANSELECTRICA	1	1	0
5	SOCIETATEA ENERGETICA ELECTRICA SA	4	4	4
6	OMV PETROM SA	5	5	5

Source: own processing

Table 3 and Table 4 shows the compliance and the level consistency with the six principles of non-financial reporting. From this we can distinguish that for the criteria "publishing of significant information" the score achieved by all companies is 5. Which means that all 6 companies present information about:

- Business model;
- Main sectoral issues;
- Interests and expectations of stakeholders.

For the second criteria "Correct, fair and easy-to-understand information" the score for the 6 companies is between 4 and 5, score 5 being achieved by OMV Petrom SA and SOCIETATEA ENERGETICA ELECTRICA SA 4, which shows that the available data are reliable and transparent, for example: they can be presented in a wide-circulation language.

The third criteria "Comprehensive but concise information" refers to the provision of information on at least environmental, social and staff aspects, respect for human rights and fight against corruption and bribery.

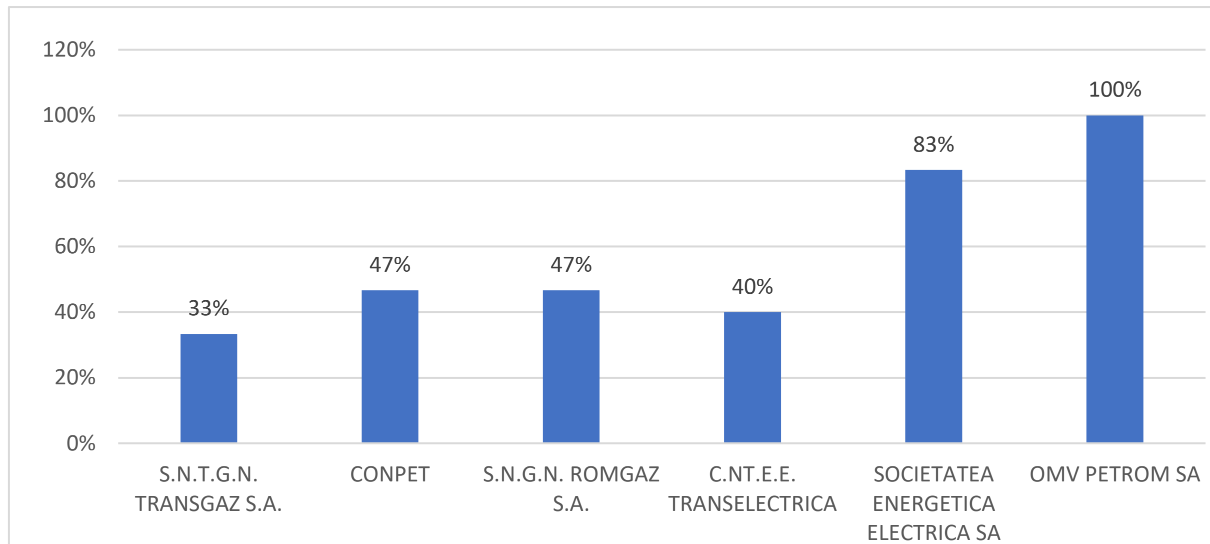
The fourth criteria "Strategic and prospective information" refers to whether companies are guided towards a sustainable business development, highlighting a single company that achieved 0, this being S.N.T.G.N. TRANSGAZ S.A.

The fifth criteria "Information oriented towards stakeholders" must show the ability of companies to publish meaningful information on the relationship with stakeholders and to explain how it influences their decisions and the sixth criteria "Consistent and coherent information" resumes the ability of companies to identify relationships and connections between the business model and corruption and bribery issues. For these criteria it is noted that the highest score is achieved by the

two companies: SOCIETATEA ENERGETICA ELECTRICA SA and OMV PETROM SA, the other companies having an orientation level between 1 and 0.

For each company, we calculated the total scores in Table 3 and Table 4, and in Chart 1 all scores are shown as a percentage.

Chart 1. Compliance level of companies with CSR Principles



Source: own processing

Chart 1 and Table 3 show that OMV PETROM SA and SOCIETATEA ENERGETICA ELECTRICA SA have the highest level of compliance with the "Guidance on Reporting Non-Financial Information" as well as with GRI G4 Core policies (Global Reporting Initiative), according to the presentation of their website.

Regarding the company's OMV PETROM SA and SOCIETATEA ENERGETICA ELECTRICA SA, they separately disclose non-financial information in a transparent manner, namely through a report entitled "Sustainability Report". OMV PETROM SA presents non-financial information since 2011, and SOCIETATEA ENERGETICA ELECTRICA SA since 2016.

The report of OMV PETROM SA is published separately on the company's website under the "Sustainability" section, at "Results" one can find the sustainability reports starting from 2011.

Following the analysis, the reference report was the report for the year 2016, which describes the way they manage and notice environmental, social and corporate governance issues.

The sustainability report of OMV PETROM SA begins in the first part with a CEO Letter, in which it summarizes the company's orientation:

- Economic sustainability;
- Social responsibility;
- Health, Safety, Security and Environment.

The second part focuses on the principle of "disclosure of meaningful information", providing information on the shareholding structure, describing the business model, corporate governance, risk management and product liability.

At the same time, it aims at creating the sustainable development of the company and, last but not least, the involvement in environmental protection and social responsibility. Social responsibility is well highlighted, OMV PETROM SA describes each program individually, it is focused on the development of the community where it operates, as well as on the individuals who contribute to the development of a responsible business.

The environmental protection section is described by a multitude of programs generally focused on factors acting directly over the environment, for example: carbon dioxide emissions and

the use of water resources. The Sustainability Report of SOCIETATEA ENERGETICA ELECTRICA SA is similar to the one submitted by OMV PETROM SA, the only difference we can observe is in the category of social responsibility, having no such high involvement as OMV PETROM SA.

Consequently, the other entities S.N.G.N. ROMGAZ S.A., CONPET, S.N.T.G.N. TRANSGAZ S.A. and C.NT.E.E. TRANSELECTRICA submit reports in the form of brochures that are not reliable, updated and detailed. For example, S.N.G.N. ROMGAZ S.A, CONPET, and S.N.T.G.N. TRANSGAZ S.A., have published only the "Annual Report on the Status of Sponsorships Granted". Only S.N.T.G.N. TRANSGAZ S.A. has, in addition, the "Corporate Social Responsibility Brochure (CSR)" and C.NT.E.E. TRANSELECTRICA has an "Environment Report (Last Version from 2007)", but both were not updated.

In conclusion, reports cannot be identical, each company presents non-financial information that may be significant depending on the type of activity, to reflect a fair image of the entity over the information needed by the stakeholders, but I believe that the other companies should also give special attention in publishing non-financial information, primarily in order to provide a higher transparency on reports.

5. CONCLUSIONS

Once with the increase in globalization, companies have started to focus on providing new information on non-financial reporting in a voluntary manner, as required by the mother company, but not mandatorily, by Directive 2014/95/EU. Non-financial reporting is a new concept, in development for Romania, following the enforcement of the Directive 2014/95/EU.

Regarding the first assumption, we can see that only six companies listed on BSE with more than 500 employees are prepared and publish non-financial information. Although Romania is part of the EU since 2007, according to Guşe et al. (2014, pg. 304–340), it still fails to adapt to the new regulations imposed by the new directive.

The results achieved from the analysis of the six companies are also supported by Guşe et al. (2016, pg. 304–340) stating that most of the rapporteurs are multinational companies influenced by the group reporting. This study shows that companies are taking best reporting practices, even if they are not required by the legislation in force to publish non-financial information.

The second assumption relates to the benefits that companies that publish information to stakeholders can get. They are highlighted by several authors, such as Gray (2000, pg. 11–32.), Steyn (2014, pg. 476–503) and Vaz et al. (2016, pg. 557–591). The authors have shown that a high level of non-financial reporting leads to an improved image of the company by:

- attracting new investors;
- high transparency of information;
- higher levels of trust with stakeholders;
- cost decrease, including low cost of capital and lower reputation risk;
- better identification of opportunities;
- improvement in the risk management process;
- accurate non-financial data available to data providers;
- increased commitment towards investors and other stakeholders;
- development of a common language and better collaboration in different fields within the organization;
- better allocation of resources.

Also, non-financial reporting aims to communicate companies' performance to stakeholders. Kulkarni (2014, pg. 33–41) considers that non-financial reporting is essential for businesses to gain a competitive advantage.

The results achieved by testing the third assumption show that non-financial reporting provides a higher transparency over the reporting performed by companies because of the whole sample of 17 companies, only two companies (OMV PETROM SA and SNGN ROMGAZ SA) are on the csrmedia portal.ro, where OMV PETROM SA is nominated as the CSR leader in Romania. This company voluntarily publishes non-financial information since 2011 for stakeholders.

A research limit is given by the small sample used, and following the analysis resulted that only six companies with sustainability report have been analyzed. A solution to show the compliance of annual reports with the principles of non-financial reporting is the inclusion of several BSE indices in the analysis. Another limitation is represented by the absence of discussions with people within companies involved in publishing non-financial information and for analysis of reports on individual financial statements rather than group reports.

This study represents a beginning for studying and understanding the role of transparency of non-financial information within sustainability reports. The document intends to broaden the reporting vision of those companies that are not yet focused on non-financial reporting.

In conclusion, the study shows that Romania is in a continuous process of developing non-financial reporting practices. With the help of the "Guide on Reporting Non-Financial Information" developed by the European Commission for understanding principles, Romania can be a potential contributor to participate with the other EU countries to the significance awareness and maintaining a non-financial information communication to stakeholders.

Acknowledgements

This paper was co-financed by The Bucharest University of Economic Studies during the PhD program.

BIBLIOGRAPHY

Albu C., Albu N., Alexander D., (2014), "When global accounting standards meet the local context-Insights from an emerging economy", Critical Perspectives on Accounting 25, pg. 489–510.

Boesso, G., & Kumar, K. (2007). "Drivers of corporate voluntary disclosure: A framework and empirical evidence from Italy and the United States". Accounting Auditing and Accountability Journal, 20, pg. 269–296.

Bowen, H. R. (1953), "Social Responsibilities of the Businessman", New York: Harper & Row.

Call, A. C., Campbell, J. L., Dhaliwal, D. S., Moon Jr., J. R., (2017), "Employee quality and financial reporting outcomes", Volume 64, Issue 1, August , pg. 123-149.

Caroll, A.B.(1999), "Corporate social responsibility: Evolution of a definitional construct", Business and Society, Vol. 38 No. 3, pg. 268–295.

Carroll, A. B. (1979). A Three Dimensional Model of Corporate Social Performance, Academy of Management Review, 4, pg. 497–505.

Chih, H. L., Shen, C. H., & Kang, F. C. (2008), "Corporate social responsibility, investor protection, and earnings management: Some international evidence", Journal of Business Ethics, 79(1/2), pg. 179–198.

Contrafatto, M. (2014) 'Stewardship theory: approaches and perspectives', in Andreaus, M., Costa, E., and Parker, L. D. (eds) Accountability and social accounting for social and non-profit organizations. 1st ed. Bingley, U.K.: Emerald Publishing, pg. 177–196.

Davis, K. (1973), "The case for and against business assumption of social responsibilities", Academy of Management Journal, Vol.16, pg. 312–322.

Directive 2014/95 / EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 October 2014, Official Journal of the European Union, Available online: http://eur-lex.europa.eu/legalcontent/RO/TXT/HTML/?uri=CELEX:32014L0095&from=RO

Elkington, J. (1999), “The triple bottom line: Implications for the oil industry”, Oil & Gas Journal, Vol. 97, pg. 139–141.

Frederick, W.C. (1960), “The growing concern over business responsibility”, California Management Review, Vol. 2, pg. 54–61.

Guidelines on the reporting of non-financial information, developed by the European Commission. Available online: http://eur-lex.europa.eu/legal-content/RO/TXT/HTML/?uri=CELEX:52017XC0705(01)&from=RO

Gray, R. (2010) “A re-evaluation of social, environmental and sustainability accounting: An exploration of an emerging trans-disciplinary field?” Sustainability Accounting and Management Policy Journal 1(1), pg. 11–32.

Grougiou V., Leventis S., Dedoulisd E., Owusu-Ansahe S., (2014), “Corporate social responsibility and earnings management in U.S. banks”, Accounting Forum 38, pg. 155–169.

Gușe, R. G., Almășan, A., Circa, C., Dumitru, M., (2016), “The role of the stakeholders in the institutionalization of the CSR reporting in Romania”, Accounting and Management Information Systems, Vol. 15, No. 2, pg. 304–340.

Jensen M., The modern industrial revolution, exit, and the failure of internal control systems, Journal of Finance, 48 (1993), pg. 831–880.

Kin Lo, Felipe Ramos, Rafael Rogo, (2017), “Earnings management and annual report readability”, Volume 63, Issue 1, February, pg. 1–25.

Kulkarni Aaishwarya R, (2014), “A Review of Concept and Reporting of Non-Financial Initiatives of Business Organisations”, Procedia Economics and Finance 11, pg. 33–41.

Mehran H., (1995), ”Executive compensation structure, ownership, and firm performance, Journal of Financial Economics, 38, pg. 163–184.

THE MINISTRY OF PUBLIC FINANCE (2016), ORDINANCE No. 123/2016 of January 28, 2016 on the main aspects regarding the preparation and submission of the annual financial statements and of the annual accounting reports of the economic operators to the territorial units of the Ministry of Public Finance, the Official Gazette of Romania no. 81 of February 4, Available online: https://static.anaf.ro/static/10/Anaf/legislatie/OMFP_123_2016.pdf

Ministry of Public Finance (2016), ORDER Nr. 1938/2016 of August 17, 2016 regarding the modification and completion of certain accounting regulations, the Official Gazette of Romania no. 680 of September 2, Available online: https://static.anaf.ro/static/10/Anaf/legislatie/OMFP_1938_2016.pdf

Prior, D., Surroca, J., & Tribo, J. (2008), “Are socially responsible managers really ethical? Exploring the relationship between earnings management and corporate social responsibility”, Corporate Governance: An International Review, 16(3), pg. 160–177.

Steyn M., (2014), “Organisational benefits and implementation challenges of mandatory integrated reporting. Perspectives of senior executives at South African listed companies”, Sustainability Accounting, Management and Policy Journal, Vol. 5 No. 4, pg. 476–503.

Shleifer A., Vishny, R.,(1997), “A survey of corporate governance”, Journal of Finance, 52, pg. 737–783.

Spence, C. (2007) “Social and environmental reporting a hegemonic discourse.” Accounting, Auditing and Accountability Journal 20(6): pg. 855–882.

van der Laan Smith, J., Adhikari, A., & Tondkar, R. H. (2005). “Exploring differences in social disclosures internationally: A stakeholder perspective”. Journal of Accounting and Public Policy, pg. 123–151.

Vaz, N., Fernandez-Feijoo, B., Ruiz, S., (2016), “Integrated reporting: an International overview, Business Ethics: A European Review, Volume 25, Number 4, pg. 557–591.

https://home.kpmg.com/ro/ro/home/presa/comunicate-presa/2017/10/cr-reporting-2017-survey.html

http://www.transgaz.ro/

https://www.conpet.ro/

https://www.romgaz.ro/

http://www.transelectrica.ro/web/tel/home

https://www.electrica.ro/
http://www.nuclearelectrica.ro/
http://www.artego.ro/
http://www.aerostar.ro/
http://compa.ro/
http://www.antibiotice.ro/
http://rompetrolwellservices.kmginternational.com/undefined
http://www.omvpetrom.com/portal/01/petromcom
http://www.oil-terminal.com/
http://rompetrol-rafinare.kmginternational.com/
http://www.petex.ro/
http://www.vrancart.ro/
http://www.electromagnetica.ro/
http://www.bvb.ro/

APPROACHING VALUE CREATION FROM AN INTEGRATED REPORTING PERSPECTIVE

Ioana SOFIAN (NEACȘU)
The Bucharest University of Economic Studies, Romania
ioana.sofian@yahoo.com

Abstract
The main objective of this paper is to identify benefits of various value creation instruments that can be used to explain the value a company creates in a potential integrated report. A list of items based on the International Integrated Reporting Framework (IIRF) content was designed with the purpose of analyzing how the characteristics of various instruments used to explain value creation (Kering's Environmental Profit & Loss Statement, KPMG's True Value Methodology, Value Added Statement, Natural Capital Protocol) are in line with the IR concept of value. The results show that Value Added Statement and KPMG's True Value Methodology are more appropriate to the IR's concept of value creation. However, none of the instruments considered is fully consistent with the IIRF and this study represents just the first part of trying to explain how old management instruments can contribute to the development and understanding of a management innovation such as IR.

Keywords: *Integrated Reporting, value, instruments of value creation, stakeholders*

1. INTRODUCTION

The concept of reporting has changed in the last decades. From classic reporting through financial statements, to various types of reporting related to social and environmental activities (e.g. Corporate Social Responsibility reporting, Sustainability reporting) and to the integration of financial and non-financial information within an integrated report. It is already clear that traditional financial information does not suit all stakeholders' informational needs; hence, there are required new means to present other types of information about a company's activity (PereraAldama and Zicari, 2012).

There is a constant reference to the value creation concept (IIRC, 2013a) and its beneficiary is still debated (Stubbs et al., 2016). The concept of value is subjective: some firms express it only through financial returns, others refer to addressing new markets or fulfil a new mission (IIRC, 2015). Every company is expected to create value, but corporate value does not often include value for society too (KPMG, 2014). The practice of integrated reporting (IR) claims to be the tool to explain how value is created for various stakeholders over medium and long term having as inputs six types of capitals: financial, manufactured, intellectual, human, natural, social and relationship (IIRC, 2013b). However, Flower (2015) argues that an integrated report is more intended to present how value is created for investors than for other stakeholders.

Some companies considered the Value Added Statement an appropriate instrument for showing the distribution of the value created among various stakeholders (Haller and Van Staden, 2014; Bagieńska, 2017; PereraAldama and Zicari, 2012; Van Staden et al., 2013), but there are also other instruments that aim to explain and assess value creation with various impacts, social and/or environmental such as KPMG's True Value Methodology, Kering's Environmental Profit & Loss statement, etc.

In this context, this research intends to identifywhat instrument of value creation can be used in order to present this concept in a potential integrated report. It is based on a normative analysis that implies a comparison of various instruments related to value creation in order to assess their compatibility with the IR concept, more exactly to examine what are the benefits of various instruments when presenting value creation as understood through the International Integrated Reporting Framework (IIRF).

Research is needed in this field because the extant literature is mainly focused on describing how an instrument explains value creation and/or how it can be used in non-financial reporting (especially sustainability reporting) without considering the connection of various instruments in order to communicate value creation. Conversely, I investigate how existing tools for presenting value creation can be used to design an appropriate integrated report in the view of the IIRF.

IR is a management innovation, the newest attempt to integrate financial and non-financial issues (Gibassier et al., 2017). According to the IIRF, IR is achieved through integrated thinking (IIRC, 2013b), an internal process designed to lead to a better understanding of a business and a better decision-making process (Adams et al., 2016; IIRC, 2013b). IR requires the management team to think about the company's business model, the beneficiary of the value created, how to consider risk and how to design strategy (Adams, 2015). The multiple capitals model proposed by IR seems to be the key to show how a company creates value for more than just shareholders (IIRC, 2013b). Although IR has promised this achievement, it was criticized especially because of the lack of information regarding how an integrated report should look like (Flower, 2015; Brown and Dillard, 2014; Thomson, 2015).

I use a list of items in order to examine what instrument helps more to present a type of value created based on the six capitals and the IR guiding principles mentioned in the IIRF.

This research is intended to inform about means that a company can use to explain the value created in accordance with the characteristics of the newest reporting approach that claims to address every stakeholder's informational need. Overall, my research contributes to the understanding of the practice of IR without necessary using a report that is called 'integrated' as it reveals how companies can use what they already do or have access to in order to achieve future reporting needs.

The paper is organized as follows. In section 2, it is explained the concept of value. Section 3represents the review of the literature related to various instruments used in the present to explain the distribution of the value created. Section 4details the methodology. Section 5 presents the research findings. A discussion, the conclusions, research limitations and directions for future research are presented in section 6.

2. THE CONCEPT OF VALUE. WHAT CAN WE UNDERSTAND THROUGH VALUE?

On one hand, Oxford dictionary (Oxford, 2018) defines the noun 'value' as "the importance, worth or usefulness of something" and the verb 'value' as "consider (someone or something) to be important or beneficial". On the other hand, Cambridge dictionary (Cambridge, 2018) attributes as synonyms, both for the noun and the verb 'value', the words 'money' and 'importance'. It provides the following definitions: "the amount of money that can be received for something" and "the importance or worth of something for someone". Hence, the definition of 'value' lies into assessing the benefits (which can be tangible or intangible) that a person gains by using something. Therefore, we are talking about a subjective understanding of this word because it always depends on the person that does the assessment of those benefits. Each individual is different in terms of personality, education, religious affiliation, cultural origins, etc. Hence, a value cannot be created without having an audience to appreciate it (Meynhardt et al., 2014) and, in order to create value, the audience must be well known by the one that creates it.

As can we also observe from the dictionaries, the primary and oldest approach to value is the economic one, involving monetary measures: how much it costs a product or service and what it is its price. In business, this would appear as the term '**Shareholder Value**' which was promoted by Alfred Rappaport in its book *Creating Shareholder Value* (1986).

In the same decade, Richard E. Freeman was introducing 'stakeholder' term through its book *Strategic Management: A Stakeholder Approach* (1984). The core idea of this concept was that a business cannot exist without taking into consideration the interests of various parties from its internal and external environment. The word 'stakeholder' is defined as "groups or individuals who benefit from or are harmed by […] corporate actions" and includes employees, customers, suppliers,

communities and financiers (Freeman, 2001). Based on this concept, the so-called '**Stakeholder Value**' takes form as a multidimensional concept that connects business with the interests of various actors.

In the next decade, Mark H. Moore introduced the concept of '**Public Value**' in its book *Creating Public Value: Strategic Management in Government* (1995). This was viewed as the equivalent of 'Stakeholder Value' in public management and it takes into consideration also moral and political aspects of value creation (Meynhardt et al., 2014).

However, a wide version of corporate value is considered the concept of '**Value Added**' (VA) because it shows the gross value created by a company (Haller and Van Staden, 2014). Leading-edge brand experts considered this a "relative rather than absolute concept" (de Chernatony et al., 2000) and it reached greater popularity in late 1970s in the United Kingdom with the publication of the *Corporate Report* that included a model of the 'Statement of Value Added' (Riahi-Belkaoui, 2010). Generally, the VA is perceived as an accounting measure defined as the 'value created by the activities of a firm and its employees, that is, sales, less the cost of bought in goods and services' (Van Staden, 2003 cited by Van Staden et al., 2013). It is calculated using any of the two available methods: the direct (subtractive) method – VA is the difference between an output and an input(Haller and Stolowy, 1998); the indirect (additive) method – VA is the sum ofwages, taxes, interests and dividends (Evraert andRiahi-Belkaoui, 1998).

After year 2000, we find new concepts related to the word 'value'. First, the '**Shared Value**' concept explored by Porter and Kramer (2006) is another arrow that points to the idea of creating value for both, business and society. They define value as "benefits related to costs, not just benefits", and 'Shared Value' focuses on 'identifying and expanding the connections between societal and economic progress' (Porter and Kramer, 2011). The *Shared Value Initiative* is a management strategy that allows companies to find business opportunities by identifying and addressing social problems that intersect with their business. This concept acts at three levels: reconceiving products and markets, redefining productivity in the value chain, enabling local cluster development (Shared Value, 2018). General Electric, InterContinental Hotels Group and Nestle are some examples of companies that applied at least one of these levels (FSG, 2018).

In the context of **IR**, **value** creation is a core concept, being mentioned over 50 times in the IIRF (Flower, 2015) and it is defined as "the process that results in increases, decreases or transformations of the capitals caused by the organization's business activities and outputs" (IIRC, 2013b). However, the term value does not refer specifically to one of the traditional concepts of 'value' mentioned before, nor it is provided a definition for this concept, leaving considerable room for interpretation.

When it comes to understand at what type of value the IIRC refers to, one has two options. First, we can rely on the first statements that we find in IIRF and declare an observable focus on value for investors, 'Shareholder Value': "IR aims to improve the quality of information available to providers of financial capital to enable a more efficient and productive allocation of capital" (IIRC, 2013b, p. 2), "The ability of an organization to create value for itself enables financial returns to the providers of financial capital" (IIRC, 2013b, p. 4), "The primary purpose of an integrated report is to explain to providers of financial capital how an organization creates value over time (IIRC, 2013b, p. 7)". Second, we can go more thoroughly into the IIRF and understand that the value concept has actually two aspects: "value created for organization" and "value created for others", concepts which are strongly connected with each other (IIRC, 2013b, p. 10). The first aspect would be equal with Shareholder Value since it "enables financial returns to the providers of financial capital" (IIRC, 2013b, p. 10) and the second aspect would refer to Stakeholder or Public Value as the examples provided for 'others' are "stakeholders and society at large" (IIRC, 2013b, p. 10). However, IIRC does not provide a clear definition of the concept of 'value'.

3. TOOLS FOR VALUE CREATION. HOW CAN WE MEASURE VALUE CREATION?

A firm's impact on its internal and external environment is understood through the value created for every part interested in it. This leads to multiple dimensions that have to be considered when communicating the annual performance (GRI, 2016). Hence, value creation is linked to different types of performance that are targeted by different categories of stakeholders. Nonfinancial reporting helps a company improve the relation with its stakeholders. Some of the reasons that convince companies to report sustainability performance in their reports are the need to comply with local regulations, to promote their achievements in the field in order to meet stakeholders' expectations and also to avoid reputation risk from not reporting (Van Wensen et al., 2011). Firms also tend to behave responsibly in institutional conditions like: public and private regulation, the presence of independent organizations that monitor corporate behavior, organized dialogues between corporations and their stakeholders, etc. (Campbell, 2007).

Along with sustainability reporting, another initiative of integrating environmental and social aspects into corporate value assessment is IR. IR appeared to explain how companies create value over time and to contribute to the development of integrated thinking within a firm (GRI, 2016). The first public consultation on what is 'value creation' and to whom is addressed was made by the IIRC through a Discussion Paper in 2011. 214 responses were received and most of them asked for more details about the beneficiaries of value creation, offering as examples the organization, the investors, other stakeholders and society at large (IIRC, 2011). A view over the practical value of IR was presented by the IIRC through its *Creating Value* series. The main purpose of these publications was to explain how the practice of integrated reporting creates value to the board (IIRC, 2014), to investors (IIRC, 2016a; IIRC, 2016c) and to the organization through the concept of integrated thinking (IIRC, 2016b). All of these documents suggest that IR is focused more on "value for others" that "value for the organization".

The existing reporting was not sufficient to offer a comprehensive view of a company's impacts and performance. This is why different tools or instruments for communicating, understanding and managing business value were designed, applied, studied, each one trying to cover more of the stakeholders' needs.

Probably the most known instrument designed to measure and communicate the distribution of the value created to various stakeholders is the **Value Added Statement (VAS)**. Van Staden (1998) reviewed 23 studies regarding the publication of the VAS in South Africa in order to identify the usefulness of such report from the users' perspective. The author found little evidence of actual usefulness because all the papers that produced evidence of predictive power used USA data, where the VAS was never published (Van Staden, 1998).

This statement was considered a suitable tool for sustainability reporting and/or IR by various researchers (Haller and Van Staden, 2014; Bagieńska, 2017; PereraAldama and Zicari, 2012; Van Staden et al., 2013). PereraAldama and Zicari (2012) and Van Staden et al. (2013) studied the usefulness of VA information as part of sustainability reporting. PereraAldama and Zicari (2012) presented how several large companies from Latin America use a VAS model to manage and communicate their CSR activity and proposed VAS as a fourth financial statement with an addition of some notes. Based on the fact that GRI requires information on value generated and distributed (similar or at least comparable to the traditional VAS), Van Staden et al. (2013) studied four countries' sustainability reports sourced from GRI database. They found that only half of South Africa's reports include VA information, in contrast with most of the European reports that contain VA information. Haller and Van Staden (2014) conducted a normative research and proposed an improved version of VAS considering the guiding principles of IR and the effects of different capitals. Based on the dual mode of computing VA, the authors designed two VAS, one reflecting the sources of value added and the other one the value added appropriation (Haller and Van Staden, 2014). Also, Bagieńska (2017) compared the content elements of a VAS with the GRI indicator Economic Value Generated and Distributed (EVG&D), concluding that EVG&D does not consider costs when calculating the added value.

Furthermore, Stainbank (2009) proposed a research question related to the usefulness of the voluntarily VAS in South Africa (where later IR is going to become mandatory). Preparers of this statement were surveyed and, although they were still supporting the preparation of VAS, they were also indicating that there was a little use of this statement in the companies (Stainbank, 2009).

One tool related to non-financial value creation was proposed through **Kering's Environmental Profit & Loss (EP&L)** statement. This initiative focuses only on environmental impacts. EP&L is a tool that measures and monitors the costs of environmental changes associated with business and estimated based on an economic analysis (Kering, 2015). It considers six categories of environmental impacts across the supply chain and, according to Kering's report, it enables engagement with investors, providers, rating agencies, governments, NGOs and industry peers. PUMA was the initial pilot company to apply this tool in 2011 before the methodology was made public (PUMA, 2017).

Furthermore, one of the Big4 audit companies has its own position on value creation. In 2014, KPMG published a report entitled *A New Vision of Value. Connecting Corporate and Societal Value Creation* which presents the **KPMG True Value Methodology (TVM)**. This methodology is based on the concept of 'societal value' that is inseparably linked to shareholder's value (KPMG, 2015a). The approach is a three-step process: assessing the companies 'true' earnings, understand future earnings at risk and create corporate and societal value (KPMG, 2014). The first step is identifying and quantifying a company's positive and negative externalities related to social, environmental and economic issues (KPMG, 2014; KPMG, 2015a). The second step is assessing how the internalization of those externalities can affect future earnings, considering three drivers of internalization: regulations, stakeholders' action and market dynamics (KPMG, 2014; KPMG, 2015a). The third step consists in quantifying the net present value of investments from a corporate and societal perspective (KPMG, 2014; KPMG, 2015a). There are some companies that already applied KPMG's philosophy on value, for example: Ambruja Cement-India (KPMG, 2015b), NS Group-Dutch Railways (KPMG, 2015c), ElectriCity-Volvo Group (KPMG, 2015d), etc.

Coulson (2016) constructively criticizes this methodology using also practical insights for companies. The author argues that this form to present the company's view on its impact on the environment and society quantified in financial terms does not consider every stakeholder's understanding of the word 'value' (Coulson, 2016). Barter (2016) outlines the lack of explanation of the 'true' value concept within the TVM and also points out that it supports more creating value for the organization than for the society through the case studies it proposes as examples, even if KPMG affirms that it is aligned with the practice of IR considering all the six capitals mentioned in the IIRF (Barter, 2016). A feminist perspective on TVM states that it is not appropriate to use the same tools that are, at least partially, responsible for capitalism's problems with the purpose to solve these same problems (Cooper and Senkl, 2016). Although there is no official prove that businesses are creating the problems the world faces, this methodology seems to be another way to present a company seeking to save the planet (Cooper and Senkl, 2016), being just an "old wine in a new bottle" that promotes the interests of an international advisory organization (Baker, 2016).

The **Natural Capital Protocol (NCP)**Programis other standardized framework proposed by Natural Capital Coalition and, as suggests its name, it focuses on natural capital. This initiative has the purpose to identify, measure and value a business' direct and indirect impacts and dependencies on natural capital (NCC, 2018a). The Protocol Framework focuses on improving internal management decisions and its application involves four stages in natural capital assessment: why (frame), what (scope), how (measure and value) and what next (apply) that are broken down into nine steps (NCC, 2018b). The definition this protocol provides for 'natural capital' is "a way of defining the wide range of benefits that we derive from nature": plants, animals, water, soils and minerals (NCC, 2018a). A NCP Application Program started in October/November 2016 through surveys, webinars and face to face meetings and lasted until June 2017, but new companies can join it anytime. This organization offers templates in order to help companies use this tool (NCC, 2016).

The need for an NCP comes from the idea that all businesses depend and impact on natural capital, directly or through their supply chains. The impacts and dependencies generate costs and

benefits and these lead to five categories of risks and opportunities: operational (e.g. reduce raw material costs), legal and regulatory (e.g. identify future legislation around climate change), financing (e.g. improve access to finance – attracting investors), reputational and marketing (e.g. identify new revenue streams and differentiate products) and societal (e.g. identify positive and negative impacts to local communities, such as water quality) (NCC, 2018a; NCC, 2018b).

There are many initiatives in sustainability management along with NCP. For example, Carbon Disclosure Project, Climate Disclosure Standards Board, Greenhouse Gas, Global Reporting Initiative, Sustainability Accounting Standards Board, etc.

4. RESEARCH METHOD

The main objective of this paper is to identify how various instruments of value creationare in line with the content of the IIRF and can be implemented in order to communicate the value created in a potential integrated report. To achieve this, a normative analysis was conducted.

In this regard, based on the six capitals model and the guiding principles from the IIRF,a list of items was created (see Table 1). The first six lines refer to the six capitals from the IIRF and provide some examples of elements that can be considered part of those capitals. The next seven lines are shedding light on the IR guiding principles. In the brackets, there are presented details about each principle and on what one should be looking for within an instrument documentation.

The coding was made with ‘yes’ or ‘no’ based on the existence of concepts or measurements related to the IIRF’s item considered in each specific methodology. The given scores are presented in the RESULTS section for each instrument.

This checklist aims to see how, in theory, the instruments emphasize the IR concept of value creation. The interpretation of this checklist should be done as if it was applied on reports. This means that, for example, if in a report we expect to find information about financial capital and stakeholders relationships, then we look for aspects linked to it into the documentation of an instrument. If we find something related, then the instrument receives ‘yes’. Otherwise, it receives ‘no’.

Understanding how consistent or inconsistent with the IIRF is each instrument of value creation considered makes companies benefit more from the information obtained by applying these instruments. However, it is expected that none of the three instruments to be fully consistent with the IIRF because otherwise IR would have not appeared. Considering that an entity aims to adopt IR, it needs to have a point to start in order to fulfil the need for a wide description of the value creation process. The use of these instruments it is not based on principles, but on a more clearly defined methodology as steps to follow, so companies should find them easier to apply and then use the results they provide in IR purposes.

Table 1. List of items considered for the objective of the paper

IIRF item	Reference IIRF paragraph
Financial capital (dividends, interests)	2.15
Manufactured capital (equipment or buildings' depreciation, infrastructure costs)	2.15
Intellectual capital (patents, copyrights, software, rights, procedures)	2.15, 2.18
Human capital (expenses related to employees)	2.15
Social and relationship capital (donations, contribution to social programs, taxes)	2.15, 2.18
Natural capital (environmental expenses)	2.15
Strategic focus and future orientation (planning new activities, comparisons with previous years, identifying risks and opportunities)	3.3–3.5
Connectivity of information (different types of capitals, quantitative and qualitative information, financial and nonfinancial information, link between the report and other communication channels)	3.6–3.9
Stakeholder relationships (considers and responds to the needs of various stakeholders)	3.10–3.16
Materiality (identifies relevant company's issues that influence its ability to create value, analyzes them and calculates the amount of value created)	3.17–3.35
Conciseness (logical structure, concise)	3.36–3.38
Reliability and completeness (positive and negative matters, verified information)	3.39–3.53
Consistency and comparability (comparisons over time, constant methodology of application)	3.54–3.57

Source: author's compilation

There is no exact explanation about the information that an integrated report should contain, nor an exact format of the document. Hence, no one actually knows what to present about value creation in their reports as described by the IIRC. Understanding an existing instrument designed to present value creation can be helpful at the moment of preparing the annual report in the interest of various stakeholders (e.g. integrated report). As mentioned before, these instruments imply more precise steps to follow. This enables the transformation of the result obtained by applying an instrument into a resource in presenting value creation in an integrated report. It is true that a sample with companies that actually use at least one of these instruments would have added extra value to the results obtained, but this data was out of the author's reach.

5. RESEARCH RESULTS

Kering's EP&L concerns the environment and the NCP is related to only one capital out of the six proposed by the IIRF as inputs of the value creation process. Hence, these two tools, by design, cannot be consistent with the IIRF. For this reason, I considered for the analysis only two instruments of value creation: the VAS and KPMG's TVMas described in the documents promoting them. KPMG's TVM and the VAS are conceptually similar through their intended purpose of measuring the value a company creates for itself and for society.

As given in Table 2, both of these seem to be appropriate to the concept of IR mentioned in the IIRF. Each one of them obtained only one 'no' for the items considered.

The results will be presented broken down in two categories. The section starts explaining the scores given for the capitals and the stakeholder relationships principle. Afterwards, there are described the scores given for the remained guiding principles.

Table 2. Checklist's results for value creation instruments

IIRF item	Reference IIRF paragraph	TVM	VAS
Financial capital (dividends, interests)	2.15	yes	yes
Manufactured capital (equipment or buildings' depreciation, infrastructure costs)	2.15	yes	yes
Intellectual capital (patents, copyrights, software, rights, procedures)	2.15, 2.18	no	yes
Human capital (expenses related to employees)	2.15	yes	yes
Social and relationship capital (donations, contribution to social programs, taxes)	2.15, 2.18	yes	yes
Natural capital (environmental expenses)	2.15	yes	yes
Strategic focus and future orientation (planning new activities, comparisons with previous years, identifying risks and opportunities)	3.3-3.5	yes	yes
Connectivity of information (different types of capitals, quantitative and qualitative information, financial and nonfinancial information, link between report and other communication channels)	3.6–3.9	yes	no
Stakeholder relationships (considers and responds to the needs of various stakeholders)	3.10–3.16	yes	yes
Materiality (identifies relevant company's issues that influence its ability to create value, analyzes them and calculates the amount of value created)	3.17–3.35	yes	yes
Conciseness (logical structure, concise)	3.36–3.38	yes	yes
Reliability and completeness (positive and negative matters, verified information)	3.39–3.53	yes	yes
Consistency and comparability (comparisons over time, constant methodology of application)	3.54–3.57	yes	yes

Source: author's compilation

Regarding the capitals and the stakeholder relationships principle

The indirect (additive) method of the VA determination shows that this represents the sum of the value retained for the company, the remuneration of the employees, the remuneration of the government/society and the remuneration of the capital providers (creditors, investors). Haller and Stolowy (1998) state that the additive method links the VA concept to a social aspect, unlike the subtractive (direct) method which is linked to a performance aspect. When breaking down the VA formula into capitals considered, as Dumitru et al. (2015) also observed, this concept reflects the connection between the following capitals: financial capital (dividends, interests), human capital (wages, employees' other benefits), social capital (taxes, donations, community investments, etc.) and manufactured capital (value of the goods purchased). Moreover, in the view of stakeholder relationships principle, the VA is a tool that shows the entity's ability to satisfy the needs of several groups of stakeholders as it can be deduced from the additive method of calculation.

No direct reference to intellectual or natural capital is made in the computation mode of the VA. However, since today climate changes are capturing the attention of business area, one can argue that the VA could include an amount for natural capital protection, that is, for example, investments in renewable environmental resources used in the company's activity. Moreover, the retained earnings for the firm could also include investments in intellectual property in the view of the intellectual capital. Hence, although it cannot be identified a direct reference to the natural or intellectual capital, one can consider that the VA formula can be adjusted to present various capitals

and used in accordance to different stakeholders needs. This is why this instrument receives 'yes' at all the categories related to capitals and the stakeholder relationships principle.

On the other hand, the first step of the TVM is identifying and quantifying externalities, both positive and negative that assess the 'true' earnings of a company (KPMG, 2014). These externalities are classified in three categories and illustrated through examples in the KPMG's report: economic (taxes, dividends, wages, interests on loans), social (infrastructure, education, healthcare, pollution) and environmental (renewable energy, land stewardship, recycling, waste, ecosystems, greenhouse gas emissions, water, raw materials, etc.). Therefore, KPMG's proposed methodology covers issues related to financial, human, social and natural capital as presented in Table 2.

Also concerning the social and relationship capital, this instrument considers the following groups as key stakeholders that drive internalization: workers, communities, NGOs, civil society and buyers (KPMG, 2014).The value creation process takes into consideration the relationships between various types of stakeholders in order to achieve collective well-being (IIRC, 2013b). The TVM perceives these groups as factors to consider into the calculation of the company's 'true' earnings and their action as one impetus for companies to do "more to understand and address their externalities"(KPMG, 2014). Hence, the principle related to stakeholder relationships is also taken into account by the TVM because it recognizes the importance of the communication between the company and various stakeholders into the process of societal value creation.

At some point, the manufactured capital is also considered through several examples provided for externalities. For instance, the provision of roads or the generation of energy for an improved quality of life are classified into a positive social externality entitled 'infrastructure'. Moreover, there are some negative environmental externalities that can be perceived as related to infrastructure issues mentioned in the IIRF when it comes to manufactured capital: e.g. damage to ecosystems and communities by withdrawing the water in areas of water shortage, environmental damage caused by the incineration of waste, etc. Furthermore, no reference or link to intellectual capital were noticed in the content of the TVM. However, even the IIRF argues that not all the capitals are equally relevant for every entity in its process of creating value over medium and long term.

Regarding the other IR guiding principles

The IR principle of materiality is considered in the TVM, starting from the first step of identifying and quantifying externalities: "Only those externalities that are material to the company, its stakeholders, society and the environment should be included" (KPMG, 2014). As regards VAS, this principle it is not explicitly mentioned in the VA concept, but Haller and Van Staden (2014) prove that VAS it is material to "assess the organization's ability to create value" as stated in the IIRF.

As regards the connectivity of information, TVM sheds light on the link between a company's business model and the changes in its external environment by considering the action of a system of social and environmental megaforces (KPMG, 2012) that are not isolated one from each other and have significant implications for businesses too (KPMG, 2014). Another sign of connectivity is that it considers the association of financial and other type of information: when assessing the 'true earnings bridge', the calculation starts from the actual earnings and it is adjusted with the externalities that are also social and environmental, not just economic. On the other hand, the dual way in which VA can be calculated also supports the principle of connectivity (Haller and Van Staden, 2014). In addition, the information used to draw a VAS comes as a result of applying accounting procedures, aspect that shows a connection between two economic areas: the VAS enables a management use of an accounting information in the view of the IR concept.

Regarding the consistency and comparability principle, the VAS is usually developed starting from the income statement and it presents specific steps to follow in order to compute value creation. With this methodology and structure relatively constant, the VAS allows comparisons between years in order to observe increases or decreases in the wealth a company is producing. In the view of consistency and comparability principle, the TVM includes a constant methodology that offers measurable proxies and facilitates comparisons over time. It also involves the existence of a baseline:

"A suitable baseline for assessment should be defined. This will include the time period for which externalities are to be calculated." (KPMG, 2014).

As regards the strategic focus and future orientation, the TVM implies understanding future earnings considering risks and opportunities caused by three categories of drivers of internalization. This process requires being able to offer a future outlook of the business. For example, through market dynamics, the TVM suggests companies to consider the scarcity and pricing of resources (acting in order to conserve their current suppliers), the extreme weather conditions (natural disasters are occurring more frequently) and the rise of markets for new products and services (sometimes caused by extreme weather). This methodology intends to help companies to develop strategies that "capture value creation opportunities and reduce risk" (KPMG, 2014).On the other hand, the VA can be a good indicator of wealth creation over time when considering all types of remuneration costs. This fact transforms the VASinto a future oriented tool. In addition, the VA is an indicator used to determine a company's productivity, size and growth, all relevant strategic parameters (Haller and Van Staden, 2014).

Concerning reliability and completeness, the TVM was developed in order to address the need "to provide a lens through which investments can be assessed for their potential to create both corporate and societal value" (KPMG, 2014). In addition, it is designed to consider the impact of the value the company creates and reduces for society over the value it creates for shareholders (KPMG, 2015a). Hence, not only it presents material issues, but both, positive and negative. The VAS does not consider the value the company reduces from society. For example, it could deduct the amount of negative influences – e.g. greenhouse gas emission – from the final result. However, one can state that this instrument is reliable and complete based on its focus on various categories of stakeholders, its link to financial accounting and its level of internal and external assurance provided (Haller and Van Staden, 2014).

As regards conciseness, the TVM follows a logical structure and KPMG proposes examples of diagrams that can be used to design a value creation presentation in a clear and concise way. Also, the VAS can be concise since it usually has a predefined structure in various countries.

6. DISCUSSION AND CONCLUSION

In the view of the IR phenomenon, the value creation process occurs through a company's business model which considers capitals as inputs and, by conducting activities, it produces outputs that, over time, create or destroy value for the company, its stakeholders, the society and the environment (IIRC, 2013a).

The term 'value' was defined as a benefit that someone has from something, but value cannot be created without someone to assess it. We live in a society where everything is connected: businesses with people, businesses with environment, businesses with society, society with environment. We all depend on each other. Hence, companies should try to consider as many interests as possible of its stakeholders, no matter through which instrument or method they are calculating the amount of the so-called 'value' created.

This research was aimed to find characteristics of existing instruments of value creation when it comes to present the value a company creates within a potential integrated report.

There are many instruments and tools that consider their own view over various aspects mentioned in the IIRF, as regards the capitals or principles or content elements per se. IR it supposes one report where all the information is interconnected and it represents the result of achieving integrated thinking within a company. Based on this idea, an integrated report preparer should be able to learn and use existing methods in order to facilitate its work and to provide complete and concise information about the values a company creates.

The research was conducted on two instruments based on their possibility to be consistent with the IIRF content. The NCP and Kering's EP&L are tools that can be used to assess environmental issues. The analysis conducted proved that both, the TVM and the VAS are appropriate instruments for the

IR concept of value creation as given their characteristics. On one hand, the VAS is more an accounting based tool to assess value creation and IR is a management innovation (Gibassier et al., 2017) which suggests that the values a company communicates to be creating through an integrated report should eventually lead to a better internal management and decision making. On the other hand, the TVM it is quite a new tool and the use of the term 'true' is criticized as not being well defined. Moreover, it is an instrument developed and supported by a Big 4 audit firm, KPMG, aspect that mirrors the possible existence of other interests in the middle. Notwithstanding all these, this normative analysis could be somehow characterized as tolerant and subjective.

In addition, IR is a term that lacks of a practical definition so far. When stakeholders were asked to provide an IR definition, managers preferred to say what IR does not represent (Higgins et al., 2014), while investors were focused on associating concepts to IR like: risks and opportunities, stakeholders, environmental, social and governance (ESG) and financial performance, etc. (Atkins & Maroun, 2015).

The idea of the paper was to develop a more practical basis on which integrated reports preparers can rely on. Even if the IIRC provides an examples database, each company that applies IR is encouraged to be creative and find its own manner to communicate with its stakeholders. I believe that a good knowledge of the existing instruments to measure value creation can support a better communication between business and society in general. The IIRF is a principle based framework, it is not mandatory, but it can be considered a guide for this journey. However, South African preparers consider it as a list of steps to follow when designing an integrated report (Atkins and Maroun, 2015).

Like any other study, this one has limitations too. One could be that the checklist is applied on few instruments of value creation. However, I tried to compare tools that focus on more than one capital in order to get closer to the IR concept. Another limitation could come from the fact that there is only one person that analyzes these instruments, even if the analysis is based on words and phrases from an instrument documentation.

The present analysis represents the first step in constructing the practical basis mentioned before. The next step and a future direction of research is applying a similar checklist on entities' reports from various industries and/or countries in different years in order to observe how companies communicate value creation to their stakeholders. Moreover, future research could aim to find what companies prefer as instrument to quantify the value they create for different stakeholders or to question IR companies about the use of one or various of these tools in order to prepare an integrated report. Another option to continue this research idea could be reproducing this study, but increasing the number of instruments analyzed and/or the number of criteria considered.

BIBLIOGRAPHY

Adams, C.A. (2015). The International Integrated Reporting Council: A call to action, *Critical Perspectives on Accounting*, 27, 23–28.

Adams, C.A., Potter, B., Singh, P.J., York, J. (2016). Exploring the implications of integrated reporting for social investment (disclosures), *British Accounting Review*, 48(3), 283–296.

Atkins, J., Maroun, W. (2015). Integrated reporting in South Africa in 2012. Perspectives from South African institutional investors, *Meditari Accountancy Research*, 23(2), 197–221.

Bagieńska, A. (2017). Value Added Statement – A Relevant Instrument for Integrated Reporting, *e-Finance*, 12(4), 92–104, DOI: https://doi.org/10.1515/fiqf-2016-0011

Barter, N. (2016). A review of "A New Vision of Value" – old wine, new bottle, *Sustainability Accounting, Management and Policy Journal*, 7(4), 531–538, DOI: 10.1108/SAMPJ-12-2015-0111

Brown, J., Dillard, J. (2014). Integrated reporting: On the need for broadening out and opening up, *Accounting, Auditing & Accountability Journal*, 27(7), 1120–1156.

Cambridge (2018). Cambridge English dictionary, available online: https://dictionary.cambridge.org/dictionary/english/value (accessed on 4 August 2018)

Campbell, J. L. (2007). Why Would Corporations Behave in Socially Responsible Ways? An Institutional Theory of Corporate Social Responsibility, *The Academy of Management Review*, 32(3), 946–967.

Cooper, C., Senkl, D. (2016). An(other) truth: a feminist perspective on KPMG's true value, *Sustainability Accounting, Management and Policy Journal*, 7(4), 494–516, DOI 10.1108/SAMPJ-08-2016-0049.

Coulson, A.B. (2016). KPMG's True Value methodology. A critique of economic reasoning on the value companies create and reduce for society, *Sustainability Accounting, Management and Policy Journal*, 7(4), 517–530.

De Chernatony, L., Harris, F., Dall'Olmo Riley, F. (2000). Added value: its nature, roles and sustainability, *European Journal of Marketing*, 34(1/2), 39–56, DOI: https://doi.org/10.1108/03090560010306197

Dumitru, M., Gușe, R.G., Feleagă, L., Mangiuc, D.M., Feldioreanu, A.I. (2015). Marketing communications of value creation in sustainable organizations. The practice of integrated reports, *Amfiteatru Economic*, 17(40), 955–976.

Evraert, S., Riahi-Belkaoui, A. (1998). Usefulness of value added reporting: a review and synthesis of the literature, *Managerial Finance*, 24(11), 1–15, DOI: https://doi.org/10.1108/03074359810765679

Flower, J. (2015). The international integrated reporting council: A story of failure, *Critical Perspectives on Accounting*, 27, 1–17, DOI: https://doi.org/10.1016/j.cpa.2014.07.002

Freeman, R.E. (2001). Stakeholder Theory of the Modern Corporation, *Perspectives in Business Ethics Sie*, 3, 144.

FSG (2018). Creating Shared Value, Foundation Strategy Group (FSG), available online: https://www.fsg.org/publications/creating-shared-value (accessed on 11 August 2018)

Gibassier, D., Rodrigue, M., Arjaliès, D.-L. (2017). "Integrated Reporting Is Like God: No One Has Met Him, but Everybody Talks About Him." The Power of Myth in the Adoption of Management Innovations, *Accounting, Auditing and Accountability Journal*, Forthcoming. Available at SSRN: https://ssrn.com/abstract=2880144

GRI (2016). Forging a path to Integrated Reporting. Insights from the GRI Corporate Leadership Group on Integrated Reporting, Global Reporting Initiative, available online: https://www.globalreporting.org/resourcelibrary/GRI-CLG_IntegratedReporting.pdf (accessed on 2 November 2017)

Haller, A., Stolowy, H. (1998). Value Added in Financial Accounting: A Comparative Study of Germany and France, *Advances in international accounting: a research annual*, 11, 23–51.

Haller, A., van Staden, C. (2014).The value added statement – an appropriate instrument for Integrated Reporting, *Accounting, Auditing & Accountability Journal*, 27(7), 1190–1216, DOI: https://doi.org/10.1108/AAAJ-04-2013-1307

Higgins, C., Stubbs, W., Love, T. (2014). Walking the talk(s): Organisational narratives of integrated reporting, *Accounting, Auditing & Accountability Journal*, 27(7), 1090–1119, DOI: http://dx.doi.org/10.1108/AAAJ-04-2013-1303

IIRC (2011). Towards Integrated Reporting. Communicating Value in the 21st Century. Summary of Responses to the September 2011 Discussion Paper and Next Steps, International Integrated Reporting Council, available online: http://integratedreporting.org/wp-content/uploads/2011/09/IR-Discussion-Paper-2011_spreads.pdf (accessed on 2 November 2017)

IIRC (2013a). Value Creation. Background Paper, International Integrated Reporting Council, available online: http://integratedreporting.org/wp-content/uploads/2013/08/Background-Paper-Value-Creation.pdf (accessed on 4 August 2018)

IIRC (2013b). International Integrated Reporting Framework, International Integrated Reporting Council, available online: https://integratedreporting.org/wp-content/uploads/2013/12/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf (accessed on 2 November 2017)

IIRC (2014). Creating Value. Value to the Board, International Integrated Reporting Council, available online: http://integratedreporting.org/wp-content/uploads/2015/04/Value-to-the-Board.pdf (accessed on 2 November 2017)

IIRC (2015). Materiality in <IR>. Guidance for the preparation of integrated reports, International Integrated Reporting Council, available online: https://integratedreporting.org/wp-content/uploads/2015/11/1315_MaterialityinIR_Doc_4a_Interactive.pdf (accessed on 8 November 2017)

IIRC (2016a). Creating Value. Integrated Reporting <IR> and Investor Benefits, International Integrated Reporting Council, available online: https://integratedreporting.org/wp-content/uploads/2016/01/1323_CreatingValue_No3_8a-1.pdf (accessed on 2 November 2017)

IIRC (2016b). Creating Value. The cyclical power of integrated thinking and reporting, International Integrated Reporting Council, available online: http://integratedreporting.org/wp-content/uploads/2016/11/CreatingValue_IntegratedThinking_.pdf (accessed on 2 November 2017)

IIRC (2016c). Creating Value. Value to Investors, International Integrated Reporting Council, available online: http://integratedreporting.org/wp-content/uploads/2015/04/Creating-Value-Investors.pdf(accessed on 2 November 2017)

Kering (2015). Kering Environmental Profit and Loss (EP&L), Kering, available online: http://www.kering.com/sites/default/files/document/kering_epl_methodology_and_2013_group_results_0.pdf#page=24 (accessed on 25 November 2017)

KPMG (2012). Expect the Unexpected: Building business value in a changing world, KPMG, available online: https://home.kpmg.com/content/dam/kpmg/pdf/2012/08/building-business-value-part-1.pdf (accessed on 29 March 2018)

KPMG (2014). A New Vision of Value: Connecting corporate and societal value creation, KPMG, available online: https://assets.kpmg.com/content/dam/kpmg/pdf/2014/11/A-New-Vision-of-Value.pdf (accessed on 6 November 2017)

KPMG (2015a). Introducing KPMG True Value, KPMG, available online: https://home.kpmg.com/content/dam/kpmg/ae/pdf/introduction-kpmg-truevalue.pdf (accessed on 9 November 2017)

KPMG (2015b). KPMG True Value Case Study HOLCIM/AMBUJA CEMENT LTD., KPMG, available online: https://assets.kpmg.com/content/dam/kpmg/pdf/2016/05/holcim-ambuja-cement-case-study-12-11-2016.pdf (accessed on 25 November 2017)

KPMG (2015c). KPMG True Value Case Study NS (DUTCH RAILWAYS), KPMG, available online: https://home.kpmg.com/content/dam/kpmg/pdf/2015/06/ns-dutch-railways.pdf (accessed on 25 November 2017)

KPMG (2015d). KPMG True Value Case Study Volvo Group, KPMG, available online: https://home.kpmg.com/content/dam/kpmg/pdf/2015/10/volvo-group-kpmg-true-value-case-study.pdf (accessed on 25 November 2017)

Meynhardt, T., Gomez, P., Schweizer, M.T. (2014). The Public Value Scorecard, *Performance*, 6(1), 2–9.

NCC (2016). Natural Capital Protocol User Templates, Natural Capital Coalition, available online: https://naturalcapitalcoalition.org/wp-content/uploads/2016/07/NaturalCapitalProtocol-User-Templates-13July2016-1.pdf (accessed on 4 August 2018)

NCC (2018a). Natural Capital Protocol Application Program, Natural Capital Coalition, available online: https://naturalcapitalcoalition.org/protocol/protocol-application-program/ (accessed on 4 August 2018)

NCC (2018b). Natural Capital Protocol, Natural Capital Coalition, available online: https://naturalcapitalcoalition.org/protocol/protocol-application-program/ (accessed on 4 August 2018)

Oxford (2018). Oxford English dictionary, available online: https://en.oxforddictionaries.com/definition/value (accessed on 4 August 2018)

Perera Aldama, L., Zicari, A. (2012).Value-added reporting as a tool for sustainability: a Latin American experience, *Corporate Governance: The international journal of business in society*, 12(4), 485–498, DOI: https://doi.org/10.1108/14720701211267829

Porter, M.E., Kramer, M.R. (2006). The Link Between Competitive Advantage and Corporate Social Responsibility, *Harvard Business Review Strategy and Society*, December 2006, 78–92.

Porter, M.E., Kramer, M.R. (2011), Creating Shared Value. How to reinvent capitalism – and unleash a wave of innovation and growth, *Harvard Business Review*, January–February 2011, Reprint R1101C, 1–17

PUMA (2017). Environmental Profit and Loss Account Results 2016, PUMA, available online: http://about.puma.com/en/sustainability/environment/environmental-profit-and-loss-account (accessed on 25 November 2017)

Riahi-Belkaoui, A. (2010). Wealth and Value Added: Reporting, Analysis, Prediction, and Taxation, eBook

Shared Value (2018).*About Shared Value*, Shared Value Initiative, available online: https://www.sharedvalue.org/about-shared-value (accessed on 15 march 2018)

Stainbank, L.J. (2009). The Value Added Statement: does it add any value?, *Meditari Accountancy Research*, 17(2), 137-149, DOI: https://doi.org/10.1108/10222529200900016

Thomson, I. (2015). But does sustainability need capitalism or an integrated report? A commentary on 'The International Integrated Reporting Council: A story of failure' by Flower J., *Critical Perspectives on Accounting*, 27, 18–22.

Van Staden, C., Haller, A., Landis, C. (2013).Value Added information as part of Sustainability reporting – initial international insights, paper presented at the seventh Asia Pacific Interdisciplinary Research in Accounting Conference, Kobe

Van Staden, C.J. (2003). The relevance of theories of political economy to the understanding of financial reporting in South Africa: the case of value added statements. *Accounting Forum*, 27(2), 224–246.

Van Staden, C.J. (1998). The usefulness of the value-added statement in South Africa, *Managerial Finance*, 24(11), 44–59, DOI: https://doi.org/10.1108/03074359810765705

Van Wensen, K., Broer, W., Klein, J., Knopf, J. (2011).*The state of play in sustainability reporting in the European Union*, CREM and adelphi, available online: ec.europa.eu/social/BlobServlet?docId=6727&langId=en (accessed on 2 December 2017)

COMPARATIVE ANALYSIS OF VOLUNTARY AND MANDATORY INTEGRATED REPORTING PRACTICES

Alina BRATU
Bucharest University of Economic Studies, Romania
alina.bratu@cig.ase.ro

Abstract
Integrated reporting is a new corporate reporting paradigm, introduced by the IIRC as a solution to all the shortcomings of the traditional reporting. At the moment, integrated reporting is mandated only for the South African listed companies, although this practice is adopted on an international level. In this context, a first objective of this paper is to assess the compliance level of the integrated reports with the IIRC Framework suggestions regarding its Content Elements. The second aim of this study is to analyze the integrated reporting practices adopted by the JSE listed companies compared to those used by the organizations which have voluntarily published integrated reports.
This research employs a content analysis and scoring methodology in order to evaluate all the integrated reports available in the Integrated Reporting Examples Database for 2017. The results reveal that the companies are in different stages regarding the conformity with the IIRC requirements. Moreover, the mandatory integrated reports show better compliance with the IIRC Framework's suggestions, although the difference between the two types of integrated reports is not significant.
This study aims to provide a better understanding of integrated reporting as a practice and provides insights on the current manner of implementation. This research contributes to relevant literature by analyzing the translation in practice of the integrated reporting.

Keywords: *Content analysis, Content Elements, IIRC Framework, Integrated reporting, Scoring*

1. INTRODUCTION

Organizations have responsibilities not only to their investors, but also to society, still the existent corporate reporting norms have disassociated financial, social and environmental reporting (Lodhia and Stone, 2017). In order to connect sustainability and financial reporting, the organizations had to remodel their corporate reporting practices, transiting from mandatory reporting to voluntary disclosure (Vaz et al., 2016). At the same time, the accounting profession contested the traditional financial reporting model, arguing that it does not adequately meet stakeholder information needs in assessing past and future performance of a company (Flower, 2015).

In response to these issues, corporate reporting followed a transformation process, focusing on voluntary disclosures regarding the transparency and corporate responsibility policies (Dumay et al., 2016). In order to meet the stakeholders' information needs, companies have issued increasingly more reports of non-financial nature, including the social, environmental and economic impacts, not only as a form of accountability, but also as a way to design the company's strategy. (Lungu et al., 2011). Leading companies have begun to integrate all their corporate communications, disclosing only "One report" (Eccles and Krzus, 2010), producing integrated reports with the purpose of achieving sustainable development. The integrated report allows providing the necessary information to the stakeholders, using minimal resources. The integrated report offers insights on various topics, such as corporate governance, strategy and performance in an organized manner, focusing on the context in which the company operates (García-Sánchez et al., 2013; IIRC, 2013).

Integrated reporting has immediately gained notable importance since the formation of the International Integrated Reporting Council (IIRC). Consequently, the IIRC has become the global leading organization in developing policy and practice recommendations in the field of integrated reporting, but it was not the first promoter in this area (De Villiers et al., 2014). Besides the companies that experimented with integrated reporting in its incipient stages, South Africa was the first country to require listed companies to provide an integrated report. Specifically, the listed companies on the

Johannesburg Stock Exchange (JSE) were required to adopt integrated reporting practices on a comply or explain basis (Cheng et al., 2014). The South African integrated reporting framework had a greater focus on social, environmental and sustainability issues than the IIRC Framework (De Villiers et al., 2014). The IIRC Framework has received critique on this matter, as it focuses to create "value for investors" (Flower, 2015, 1) as opposed to the South African framework. Integrated reporting involves connecting financial and non-financial information in a single report, in order to highlight the existing interdependencies, therefore significantly increasing the quality of reporting. Integrated reporting is the most efficient way to identify issues which affect corporate activity and is the modality to achieve an improved resource allocation. All of these support integrated thinking, and the management actions are aimed at creating value (Hurghis, 2017).

The integrated report combines the most important elements of distinct reporting components an organization should disclose in a coherent manner. Moreover, the integrated report presents the most strategically relevant information, essential to the stakeholders' decision-making process (Cheng et al., 2014). Also, it must ensure information connectivity and explain how an organization can create and sustain short-, medium- and long-term value (IIRC, 2013). The integrated report should reduce the presentation of short-term information, which is criticized by both academic literature and stakeholders.

The main objective of this paper is to examine the state of integrated reporting as an emerging practice in corporate reporting. To achieve this aim, two objectives are formulated. The first purpose of this study is to assess the compliance level of the integrated reports with the IIRC Framework's suggestions regarding the Content Elements. The second aim of this research is to analyze the integrated reporting practices adopted by the JSE listed companies compared to those used by the organizations which have voluntarily published integrated reports. In order to carry out the research, content analysis combined with a scoring method were applied to the integrated reports for the 2017 fiscal period included in the Integrated Reporting Examples Database.

This research contributes to academic literature by analyzing the translation from theory to practice of integrated reporting. The paper provides original insights on the current manner of integrated reporting implementation, by analyzing the most recent published integrated reports, particularly the reports for 2017. Others studies analyze integrated reporting implementation using a similar research method (Eccles et al, 2015; Lizcano et al., 2011), but the referential used for the respective researches is either the Consultation Draft of The International IR Framework (2013) or the Discussion Paper (2011), whereas this study uses the final product of the IIRC's movements towards integrated reporting – the IIRC Framework (2013). This paper differs from previous research by analyzing only integrated reports indexed in the IR Examples Database, as other studies included in their sample other types of publications, such as Annual Reports.

The remainder of this paper is organized as follows: Section 2 offers a brief review of previous studies analyzing integrated reporting in practice. Section 3 explains the key methodological aspects of the employed research method, as well as the sample selection process. Section 4 presents the research findings and provides insights on the integrated reporting practice and finally Section 5 presents the concluding remarks of this study.

2. LITERATURE REVIEW

The main objective of the IIRC Framework (2013) is to provide a common reporting base, by defining the fundamental concepts regarding integrated reporting (mainly the Value Creation process over short, medium and long term and the Six Capitals) by establishing Guiding Principles and Content Elements that should be found in an integrated report (IIRC, 2013). Integrated reporting involves connecting financial and non-financial information in a single report, in order to highlight the existing interdependencies, therefore significantly increasing the quality of corporate reporting. Integrated reporting is the most efficient way to identify issues which affect corporate activity and is the modality to achieve an improved resource allocation (Hurghis, 2017).

The IICR Framework (2013: 25) presents nine elements that an integrated report should contain, specifying that the "Content Elements are not intended to serve as a standard structure for an integrated report". The structure of the integrated report will be defined in accordance with the specific circumstances in which the organization operates, and it should contain information regarding the following matters: Organizational overview and external environment; Governance; Business model; Risks and opportunities; Strategy and resource allocation; Performance; Outlook; Basis of preparation and presentation and General reporting guidance.

As rapid development and increasing relevance of integrated reporting are the main drivers for implementing this practice, the new reporting paradigm is becoming an established emerging reporting norm. Previous research on Integrated Reporting, such as Frías-Aceituno et al. (2013) and García-Sánchez et al. (2013)have focused on the analysis of the motivations and influencing factors regarding the adoption of the IIRC initiative. Other research analyzes the benefits of integrated reporting adoption. Zhou et al. (2017) and García-Sánchez and Noguera-Gámez (2017) focused on studying the impact of Integrated Reporting on the capital market and presented several benefits of the integrated reporting practice. Thus, it has been noted that improving compliance to the suggestions of the IIRC Framework (2013) leads to cost of capital reduction.

Studies focusing on analyzing the integrated reporting in practice, such as the papers by Eccles et al. (2015), Lizcano et al. (2011) and Ruiz-Lozano and Tirado-Valencia (2016), have presented the compliance extent of the integrated reports published by the companies which have responded to the IIRC proposal. The study prepared by Lizcano et al. (2011) analyses the differences between the IIRC Framework's (2013) requirements and the integrated reports released for the 2010 fiscal year by Spanish companies, found in the Global Reporting Initiative database. The results show that the companies comply with the suggestions to an acceptable extent, but there are issues which need improvement. The research presented by Eccless et al. (2015), studies 100 non-South African companies and 24 South African organizations from all economic sectors, which have prepared and presented self-declared integrated reports for the 2012 fiscal period. The results of this study highlights a variation in the compliance level, but on the average the analyzed companies published fairly well prepared integrated reports.

One of the most recent studies is prepared by Ruiz-Lozano and Tirado-Valencia (2016). The authors present a scored based analysis on the level of attention given to the Guiding Principles by the industrial companies. The results state that in the integrated reports for the 2013 fiscal year, not all the guiding principles are equally followed by the companies. The strategic approach and the connections between capitals in the value creation process are demonstrated to have a high level of observation. Still, there are other aspects which would need stronger emphasis such as the engagement of stakeholders in the process of preparing reports or the mechanisms to assure the validity of information.

Other studies that focus on analyzing the integrated reporting practice (Chaidali and Jones, 2017; Perego et al., 2016; Burke and Clark, 2016 and Robertson and Samy, 2015) highlight the views of preparers, regulators and academics regarding integrated reporting, whereas Veltri and Silvestri (2015), Beck et al. (2017) and Lodhia (2015) study the integrated reporting through the lens of individual companies. Lastly, two other articles debate the case of multiple organizations at international (Adams et al., 2016) or national level (Haji and Anifowose, 2017).

3. RESEARCH METHODOLOGY

3.1 Sample

The sample of this paper is composed of integrated reports included in the Integrated Reporting Example Database for the 2017 fiscal year. The IR Example Database makes available the most compelling reports that meet the requirements of the IIRC Framework (2013). Still, a great part of the corporate publications included in the database do not answer all the specifications listed in the IIRC Framework (2013). Instead of indexing only integrated reports, the IR Example Database

includes annual reports, and to a lesser extent, CSR reports. As the purpose of this paper is to examine and compare mandatory and voluntary integrated reporting practices, a balanced sample is constructed containing both South African integrated reports and non-mandated integrated reports.

The reports included in this study were chosen only if they met the following requirements. First, for the reports to be included in the research, the title of the publication should be "Integrated Report". The second condition is related the publishing organization, namely the reports were chosen only if they belonged to publicly listed companies.

By querying the IR Examples Database, a number of 29 reports was obtained for 2017. All of these reports were downloaded and a prescreening procedure was carried out in order to select the publications meeting the above mentioned requirements. Only 3 out of the 29 reports were voluntary integrated reports belonging to listed companies. As for the mandated integrated reports, the IR Examples Database included only 4 integrated reports belonging to South African listed companies. Therefore, the final sample contains 7 integrated reports. As highlighted in Table 1, the most represented economic sector is utilities, with 28% of the sample (two companies). Other economic sectors include: technology, telecommunications or basic materials.

Table 1. Analyzed Sample

Company	Economic Sector	Country	Report type
Adapt IT	Technology	South Africa	Mandatory
Cemex	Industrials	Mexico	Voluntary
Dentsu	Consumer services	Japan	Voluntary
Eskom	Utilities	South Africa	Mandatory
MTN Group	Telecommunications	South Africa	Mandatory
Meridian Energy	Utilities	New Zeeland	Voluntary
York Timbers Pty Ltd	Basic materials	South Africa	Mandatory

Source: IR Examples Database, available at: http://examples.integratedreporting.org, author's projection

3.2 Research method

To analyze the extent of compliance regarding the Content Elements, this research uses the *report quality assessment* method developed and introduced by Eccles et al. (2015). This method consists on comparing the IIRC Framework's (2013) requirements with the companies' integrated reports, using a scoring scale. This method was further refined by incorporating the system used by Lizcano et al. (2011). The authors' suggest a list containing factors derived from the IIRC Framework's (2013) Content Elements that should be identified in the analyzed integrated reports. By incorporating a factor list, the objectivity of the scoring procedure is greatly increased. Also, by breaking down the Content Elements, the quality assessment process is facilitated. Ruiz-Lozano and Tirado-Valencia (2016) also use the same methodology to evaluate whether the Guiding Principles are followed by industrial companies.

Therefore, an IIRC Framework's (2013) requirements analysis was carried out, in order to compose the scoring scale, which covers eight out of the nine Content Elements. Initially, all nine Content Elements were considered to be included in the study, but during the analysis it was demonstrated that the item "General guidelines for reporting" is difficult to assess. Although information to meet a part of the requirements related to this issue were found in some integrated reports, it was referred to other elements or was presented in a different context. This point of view is shared by Eccles et al. (2015), who excludes this factor, as well as "Basis of preparation and presentation", stating that assessing these items is difficult as they cover a broad area and related information overlaps with some Guiding Principles, such as "Materiality". Finally, the analyzed Content Elements are: Organizational overview and external environment, Governance, Business Model, Risks and Opportunities, Strategy and resource allocation, Performance, Outlook and Basis of preparation and presentation.

Following the IIRC Framework (2013) requirements analysis, a list of 27 items was developed using the Framework's suggestions for the Content Elements (Appendix 1). Therefore, each Content Element has two to four scoring items and partial scores ranging from 0.5 to 1.5 were assigned to every item. The sum of intermediary scores was rounded up to zero decimals, to obtain the score per each Content Element. The Content Elements scores start from 0 (the lowest score, given when a report does not provide the required information) and may reach 3 (the highest score, given in the case of a complete description). The maximum score a report can reach is 24. Finally, total and average scores were calculated for each company and per each Content Element.

4. RESULTS AND DISCUSSION

The IIRC Framework's (2013) Content Elements incorporation extent in the companies' integrated reports was assessed using the before presented methodology. In order to summarize the results total scores for each organization were calculated. Table 2 shows that York Timbers tops the list by achieving good scores for its Content Elements almost reaching the maximum value of 24. Two other companies, Cemex and MTN Group rank second with a score of 21, whereas Meridian Energy and Adapt IT are raked at the bottom of the list, with a score of 15.

Table 2. Total scores obtained by the companies

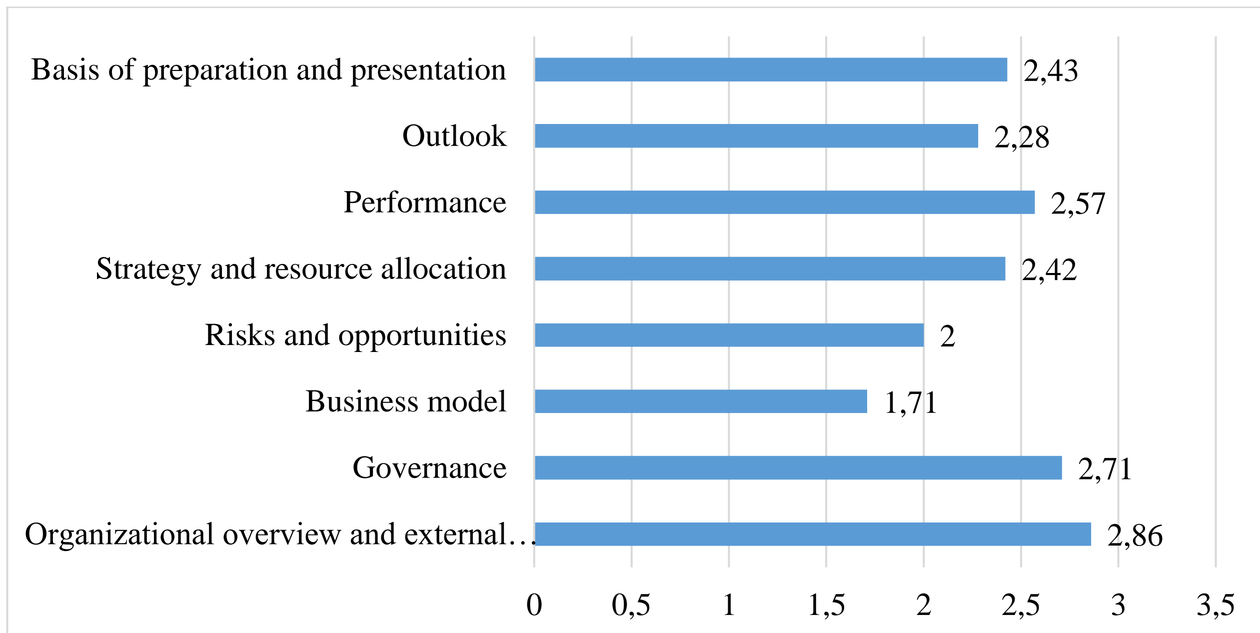
Company	**Score**	**Rank**	**Report type**
Adapt IT	15	5	Mandatory
Cemex	21	2	Voluntary
Dentsu	18	4	Voluntary
Eskom	20	3	Mandatory
MTN Group	21	2	Mandatory
Meridian Energy	15	5	Voluntary
York Timbers Pty Ltd	23	1	Mandatory

Source: author's projection

The total average score obtained by the analyzed integrated reports for applying the IIRC Framework suggestions regarding the Content Elements is 2.37. When compared with the maximum score that could be obtained of 3, the compliance degree is quite high. This shows that the companies make constant efforts to improve their integrated reports. Still, none of the companies have achieved maximum scores for all the Content Elements and this outcome is expected, as the integrated reporting is a recent practice.

Analyzing the average scores obtained for the Content Elements, presented in Figure 1, it can be noted that good scores are obtained. All the factors, except "Business Model", have exceeded the 2.0 score. Although most reports displayed a good logical structure, it sometimes does not align with the suggestions of IIRC Framework (2013). Even if information to describe exhaustively the established criteria was found, it was usually dispersed in different sections of the reports, raising the complexity of the evaluation and scoring process.

Figure 1. Average scores by Content Elements



Source: author's projection

4.1 Developing insights regarding the Content Elements

Observing the average scores for each Content Element, high values are noted, culminating with the score of 2.86 obtained by Organizational overview and external environment. Governance and Performance also achieved high scores, of over 2.50. The scores are explained through the large interest shown by companies in presenting the financial and non-financial results as this is the main purpose of a corporate communication. It is observed that the companies tried to improve the integration of financial and non-financial performance. The information on these aspects is presented in quite a concise manner, as opposed to how the presentation of Governance issues is handled by the analyzed reports. Since all the studied companies are required to present extensive information on Governance, the scoring procedure became rather difficult. The required information for this Content Element was usually presented in different sub-sections of the Governance but sometimes it lacked the conciseness the IIRC Framework (2013) promotes.

On the opposite side, Business Model is the Content Element that, on average, was not correctly employed in the reports, as it scored the lowest average value, of 1.71. The Risk and Opportunities Content Element received the second lowest average score, of 2.00 as most integrated reports did not even identify the opportunities of their operating environment. Further observations on the Content Elements are explored in the following paragraphs.

Organizational overview and external environment

In most cases, the first pages of the analyzed integrated reports covered the company's overview. There have been reports that at the beginning stated the management's views on past activities or even a short presentation of the performance achieved. Although most companies provided enough information to meet the requirements of the IIRC Framework (2013), sometimes it was not presented in a very organized manner. Usually, this kind of information was combined the description of other components such as performance, strategy, or even with the Chairman's of the Board letter to the stakeholders.

Governance

This Content Element scored an average of 2.71 and is consistent with the amount of information provided by the integrated reports. Most reports have contained an extensive section dedicated to Corporate Governance. The motivation for providing such a detailed presentation on governance practices arises from the obligation to comply with governance codes or regulations. A great part of

the companies followed the IIRC Framework's (2013) suggestions regarding Governance, describing aspects of remuneration practices, composition, diversity, ethical issues, responsibilities and risk management policies. Most of the companies, 5 out of 7, proved to have a good governance presentation, providing relevant information on governance's involvement in the value creation process.

Business Model
Five companies attempted to present their business model and how it should contribute to the value creation process. In their respective reports, the companies tried to follow the IIRC Framework's (2013) suggestions on readability and effectiveness, including a diagram outlining the key elements. Still only two companies made efforts to comply with the suggestions related to business model implementation which is based on "Inputs", "Business Activities", "Outputs" and "Outcomes". Additionally, the element "Business Model" was easily identified, most reports containing a related special section, usually entitled "Business model" or "How we create value". The weaknesses of this Content Element resides in the lack of explanations related to value creation in the short, medium and long term.

Risks and opportunities
The analysis of this factor revealed an extensive concern regarding the determination of potential risks, many reports highlighting the risks and the taken prevention measures is a dedicated risk management section. In contrast to this legitimate concern is the attitude of companies regarding its opportunities. Issues relating to opportunities were hardly present in the integrated reports, since only Cemex presented information on this topic, but it did not follow the IIRC Framework's (2013) suggestion of presenting how the identified opportunities will be used to create value.

Strategy and resource allocation
All companies provided information on the promoted strategy and most studied reports had a designated section to this topic, in which strategic objectives, measures to be taken in order to achieve the targets and means to quantify the results were included. But this degree of disclosure is not sufficient to meet the IIRC Framework's (2013) requirements, as it is important to present the resource allocation in order to achieve all strategic objectives. The closest version in presenting the resource allocation is the inclusion of Capitals in the Business model, as highlighted by York Timbers in their strategy section.

Performance
The companies included in integrated reports a section more or less extensive in which the performance and the results achieved by the company in the previous fiscal year are presented. In this section were included and explained key financial indicators, but also indicators of non-financial nature. In some cases, the non-financial KPI's were presented in other sections, such as environment or employees. It is worth mentioning that the Framework's requirements regarding the performance effect on the Capitals have not been met to a large extent. Still, some companies made efforts in order to associate financial and non-financial performance. In instance, Adapt IT associated the financial and non-financial performance using the Triple Bottom Line Model.

Outlook
Information regarding this Content Element was the hardest to identify, mostly due to reports not having a section designated for this type of disclosure. Usually the outlook was presented with the strategy and objectives, sometimes in the Chairman of the Board letters to stakeholders. Most companies attempt to describe this element, though the information was dispersed in the report. Rarely all the suggestions of the IIRC Framework (2013) were met, particularly the extent to which the organization is ready to respond to critical challenges, and in some cases the possible effects of the identified changes in the external environment.

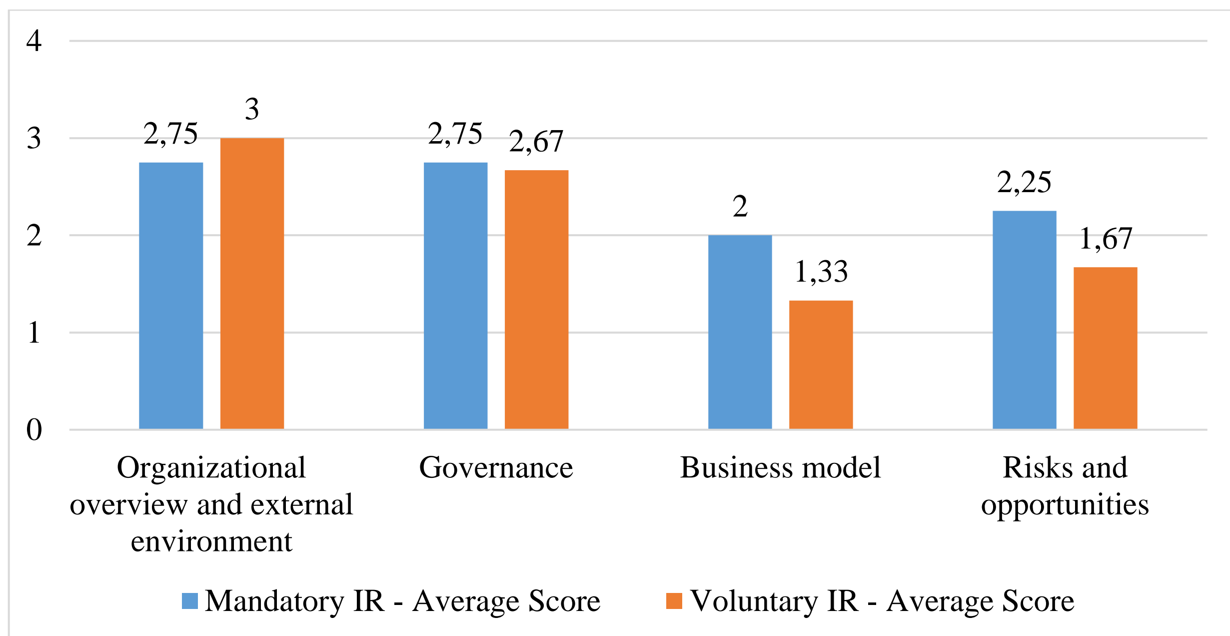
Basis of preparation and presentation
All companies complied with IIRC Framework's (2013) suggestion regarding the presentation/description of the rules or norms used as support for preparing the reports as well as the reporting boundaries. To assess this factor, "Report scope" or "About this report" sections were consulted. Few companies offered a summary on the determination materiality process in the before mentioned sections, contributing in lowering the score for this factor.

4.2 Mandatory vs. Voluntary Integrated reporting

Comparing the average scores for the mandatory integrated reporting and voluntary integrated reporting, South African companies scored higher on 5 Content Elements, as highlighted in Figure 2 and 3. With a total average of 2.5 vs. 2.33 for the rest of the sample, Strategy and resource allocation (2.75 vs. 2) had the highest average score, tied with Governance. As integrated reporting in South Africa is connected to King III code for corporate governance, the governance score is expected. Still, the Voluntary IR scored closely, meaning that governance is an interest shared by all the companies.

Analyzing the average scores presented in Figure 2, it can be noted a good scores was obtained by Organizational overview and external environment, the Voluntary IR scoring a maximum of 3. Business Model and Risk and Opportunities are the Content Elements that scored the lowest in the study, as South African scored only 2, respectively 2.25. Concerning the rest of the sample, the average scores are even lower as these two Content Elements were not well presented in the integrated reports. For example, in case of the voluntary IR section, two companies included a diagram representing the business model, but the most important IIRC Framework's suggestions were not followed (explaining the business model and presenting the Inputs, Business Activities, Outcomes). In case of South African integrated reports, two companies respected both conditions.

Figure 2. Average scores: Mandatory vs. Voluntary (1)

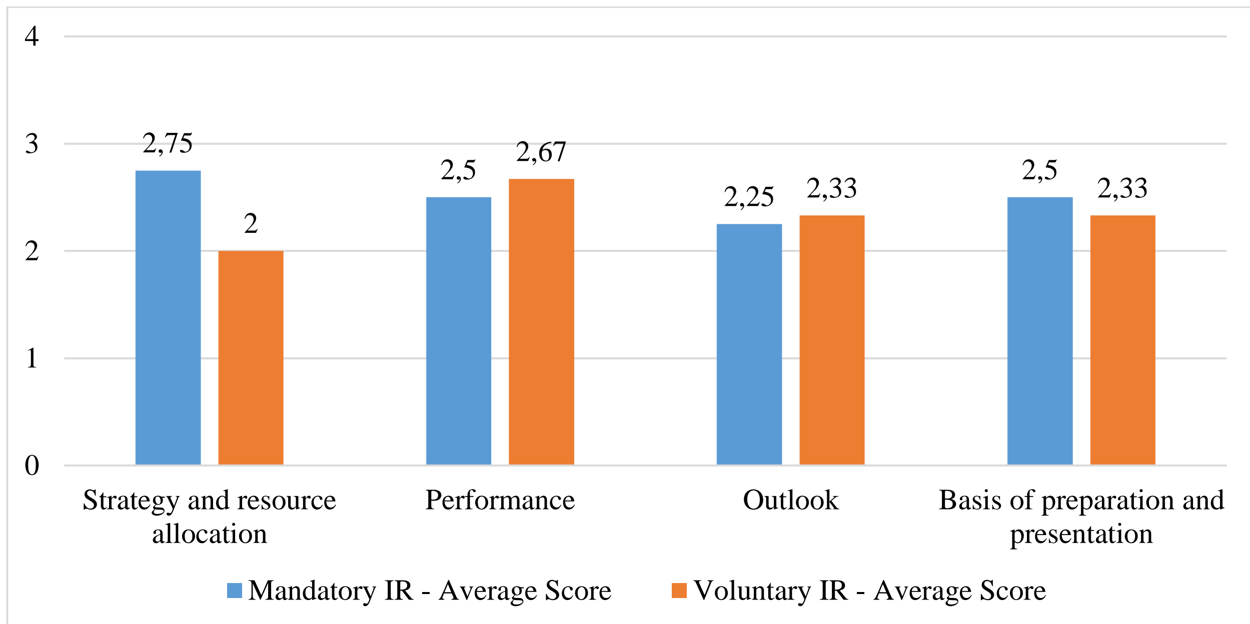


Source: author's projection

Observing the average scores presented in Figure 3, Performance and Outlook are two Content Elements that have lower scores in the case of South African integrated reports. As the differences are not very noticeable, correct explanations for this situation cannot be given especially when considering the sample size. Therefore, the slight difference between the scores shows that these Content Elements were regarded with the same importance regardless of the reporting context. Still, a significant difference of 0.75 is observed for Strategy and resource allocation. The South African reports made an effort to follow more suggestions of the IIRC Framework (describing the measures that will be implemented to reach the stated objectives, how their achievements will be measured and

in some cases the resource allocation plan), whereas the rest of the sample simply stated their strategies, and sometimes the achievements measurements.

Figure 3. Average scores: Mandatory vs. Voluntary (2)



Source: author's projection

5. CONCLUSIONS AND STUDY LIMITATIONS

The objective of this research has been to examine the state of integrated reporting as an emerging practice in corporate reporting. In order to assess the level of compliance to the IIRC Framework's (2013) requirements for the Content Elements and to debate how the practice has been translated in voluntary and mandatory integrated reporting, integrated reports from IR Example Database were analyzed. The sample used for this study is composed of 7 integrated reports belonging to companies adhering to the IIRC initiative and the reports were selected if they belonged to listed companies and the title of the report was Integrated Report. This study was carried out by using a content analysis based methodology to monitor the Content Elements mentioned above and the general conclusion is that the companies have made great efforts in order to comply with the IIRC Framework (2013).

The reports obtaining high scores for all the analyzed elements offer the needed information using a logical and easy to follow structure, a great description of value creation process and business model. Those reports are truly integrated, especially when compared with the reports that have obtained lower scores. In those instances, although efforts have been made to follow the content elements, much remains to be done, and the compliance is still in an initial phase for the companies with lower ranks.

The study concludes that most of the IIRC Framework's (2013) requirements regarding the Content elements are followed. The majority of reports offered enough data to describe each content element, but the information was scattered for some of the elements, especially Outlook. This situation is also identified by Eccles et al. (2015). Another weakness is the resource allocation matter, which is not linked to the strategy of the company, causing a negative impact on the Connectivity of information, the core of IIRC Framework (2013). A low average score was also obtained for the Business Model, as two companies did not include in their integrated reports information regarding to this element.

Regarding the average scores for the mandatory integrated reporting and voluntary integrated reporting, South African companies scored higher on 5 Content Elements: Governance, Business Model, Risks and opportunities, Strategy and resource allocation, Basis of preparation and

presentation. Regarding the other 3 Content Elements, the differences between Voluntary IR and Mandatory IR were not significant, resulting that on average the JSE listed companies have slightly a higher level of compliance with the IIRC Framework (2013). This situation is expected, as integrated reporting is compulsory for the South African companies. Nevertheless, the voluntary integrated reports quality was not inferior when compared with the South African reports.

The results and conclusions of the study are limited by the sample size, as the number of reports that have cumulatively respected all the selection rules is very small. Only 12% of the voluntary integrated reports included in the IR Examples Database answered the proposed criteria, although the IIRC Framework was finalized and published in December 2013. Furthermore, the study is limited to a single year: 2017. To broaden the boundaries of this research, incorporating a greater number of integrated reports for more fiscal periods can enable a comparative analysis by years that could show the evolution of Integrated Reporting practices. The study may be limited by the methodology, as the rating system could introduce a dose of subjectivity in the results. However, this does not invalidate the conclusions of this study.

Acknowledgements

This paper was co-financed by The Bucharest University of Economic Studies during the PhD program.

BIBLIOGRAPHY

Adams, C.A., Potter, B., Singh, P.J. & York, J. (2016) "Exploring the implications of integrated reporting for social investment (disclosures)", The British Accounting Review, vol. 48: 283–296.

Beck, C., Dumay, J. & Frost, G. (2017) "In Pursuit of a "Single Source of Thrust": from Threatened Legitimacy to Integrated Reporting", Journal of Business Ethics, vol. 141: 191–205.

Burke, J.J. & Clark, C.E. (2016) "The business case for integrated reporting: Insights from leading practitioners, regulators, and academics", Business Horizons, vol. 59: 273–283.

Chaidali, P. & Jones, M.J. (2017) "It's a matter of trust: Exploring the perceptions of Integrated Reporting preparers", Critical Perspectives on Accounting, vol. 48(C): 1–20.

Cheng, M., Green, W., Conradie, P., Konishi, N. &Romi, A. (2014) "The International Integrated Reporting Framework: Key Issues and Future Research Opportunities", Journal of International Financial Management & Accounting, Vol. 25, no. 1: 90–119.

De Villiers, C., Rinaldi, L. & Unerman, J. (2014) "Integrated Reporting: Insights, gaps and an agenda for future research", Accounting, Auditing & Accountability Journal, vol. 27, no.7: 1042–1067.

Dumay, J., Bernardi, C., Guthrie, J. &Demartini, P. (2016) "Integrated reporting: A structured literature review", Accounting Forum, vol. 40: 166–185.

Eccles, R. & Krzus, M. (2010) One Report - Integrated Reporting for a Sustainable Society, Hoboken, New Jersey: John Wiley & Sons Inc.

Eccles, R.; Krzus, M. & Ribot, S. (2015) The Integrated Reporting Movement Meaning, Momentum, Motives, and Materiality, Hoboken, New Jersey: John Wiley & Sons Inc.

Flower, J. (2015) "The International Integrated Reporting Council: A story of failure", Critical Perspectives on Accounting, vol.27: 1–17.

Frías-Aceituno, J.; Rodríguez-Ariza, L. & García-Sánchez, I. (2013) "Is integrated reporting determined by a country's legal system? An exploratory study", Journal of Cleaner Production, vol. 44: 45–55.

Garcia-Sánchez, I.M. & Noguera-Gámez, L. (2017) "Integrated information and the cost of capital", International Business Review, vol. 26: 959–975.

García-Sánchez, I.; Rodríguez-Ariza, L. & Frías-Aceituno, J. (2013) "The cultural system and integrated reporting", International Business Review vol. 22: 828–838.

Haji, A.A. & Anifowose, M. (2017) “Initial trends in corporate disclosures following the introduction of integrated reporting practice in South Africa”, Journal of Intellectual Capital, vol. 18 no. 2: 373–399.

Hurghiş, R. (2017) “Integrated reporting and Board features”, Audit Financiar, vol. XV, no. 1: 21–30.

IIRC (2011) “Towards Integrated Reporting. Communicating Value in the 21st Century”, available at http://integratedreporting.org/wp-content/uploads/2011/09/IR-Discussion-Paper-2011_spreads.pdf, retrieved on 02.28.2017.

IIRC (2013) “Consultation draft of the international <IR> Framework, available at http://integratedreporting.org/wp-content/uploads/2013/03/Consultation-Draft-of-the-InternationalIRFramework.pdf, retrieved on 03.07.2017.

IIRC (2013) “The International <IR> Framework”, available at http://integratedreporting.org/wp-content/uploads/2013/12/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf, retrieved on 03.01.2017.

Lizcano, J.; Muñoz, F. & López, M. (2011) “El informeintegrado: primerasaproximaciones de aplicación. El casoespanol”, ASOCIACIÓN ESPAÑOLA DE CONTABILIDAD Y ADMINISTRACIÓN DE EMPRESAS (AECA), available at http://aeca.es/old/comisiones/rsc/estudio_empirico.pdf, retrieved on 03.10. 2017

Lodhia, S. (2015) “Exploring the Transition to Integrated Reporting Through a Practice Lens: An Australian Customer Owned Bank Perspective”, Journal of Business Ethics, vol. 129: 585-598

Lodhia, S. & Stone, G. (2017) “Integrated Reporting in an Internet and Social Media Communication Environment: Conceptual Insights”, Australian Accounting Review, vol. 27, no. 1: 17–33.

Lungu, C.; Caraiani, C. &Dascălu, C. (2011) “Research on Corporate Social Responsibility Reporting”. Amfiteatrul Economic, vol. XIII, no.29: 117–131.

Oprişor, T.; Tiron-Tudor, A. &Nistor, C. (2016) “The integrated reporting system: a new accountability enhancement tool for public sector entities”, AuditFinanciar, vol. XVI, no. 7: 690–704.

Perego, P., Kenedy, S. & Whiteman, G. (2016) “A lot of icing but little cake? Taking integrated reporting forward”, Journal of Cleaner Production, vol. 136: 53–64.

Robertson, F.A. & Samy, M. (2015) “Factors Affecting the diffusion of integrated reporting – a UK FTSE 100 perspective”, Sustainability Accounting, Management and Policy Journal, vol. 6, no. 2: 190–223.

Ruiz-Lozano, M. & Tirado-Valencia, P. (2016) “Do industrial companies respond to the guiding principles of the Integrated Reporting framework? A preliminary study on the first companies joined to the initiative”, Spanish Accounting Review, vol. 19, no.2: 252–260.

Vaz, N., Fernandez-Feijoo, B. & Ruiz, S. (2016) “Integrated reporting: an international overview”, Business Ethics: A European Review, vol.25, no. 4: 577–591.

Veltri, S. & Silvestri, A. (2015) “The Free State University integrated reporting: a critical consideration”, Accounting, Auditing & Accountability Journal, vol. 16, no. 2: 443–462.

Zhou, S., Simnett, R. & Green, W. (2017) “Does Integrated Reporting Matter to the Capital Market?”, Abacus, vol. 53, no. 1: 94–132.

Appendix 1. List of scoring items

Content Element	Item	IIRC Framework reference
Organizational overview and external environment	Operating context	Section 4.5
	External environment	Section 4.7
Governance	The leadership structure, including skills and diversity	Section 4.9
	Attitude to risk, integrity and ethical issues	
	Remuneration policies (linked to value creation)	
Business Model	Is presented, preferably with a diagram	Section 4.13
	Narrative explanation of the Business Model	Section 4.13
	Presents Inputs, Business activities, Outputs, Outcomes	Section 4.12
	Presents information connected to the strategy, risks, opportunities and performance	Section 4.13
Risks and opportunities	Risks, sources of risks and probability	Section 4.25
	Opportunities, sources of opportunities	
	Explanation on how key risks are managed	
	Explanation on how to create value from key opportunities	
Strategy and resource allocation	Statement of strategic objectives	Section 4.28
	Strategies or actions implemented in order to accomplish the strategic objectives	
	Resource allocation plans	
	Measurement of achievements	
Performance	KPI's and narrative explanations	Section 4.32
	Connectivity of financial and non-financial performance	Section 4.32
	Linkages between past and current performance correlated with the organization's outlook	Section 4.31
	Effects on the Six Capitals	Section 4.31
Outlook	Changes in the external environment	Section 4.35
	Potential implication for the organization	Section 4.37
	Explanation on how the organization is equipped to respond to critical challenges	Section 4.35
Basis of preparation and presentation	Summary of materiality determination process	Section 4.42
	Reporting boundary	Sections 4.43–4.46
	Summary of Frameworks used	Sections 4.47–4.48.

Impression Management / Business Strategy (MA and PhD student section)

MEDIA'S REACTION TO IMPRESSION MANAGEMENT STRATEGIES

Maria-Silvia SĂNDULESCU
The Bucharest University of Economic Studies, Romania
maria.sandulescu@cig.ase.ro

Abstract
The purpose of this study is to analyse the media's reaction to impression management practices in corporate narratives. In this view, the paper draws on the case of OMV Petrom, a key player in the oil and gas industry in Central and Eastern Europe. As impression management tends to be more pronounced when companies face major predicaments, the research at hand focuses on a period that locates the company in the media spotlight. Particularly, while in2013 the company had the highest profit ever recorded by a Romanian company, in 2015 it incurred its first loss following privatization. The paper answers previous calls to analyse manipulative disclosures by means of case studies and qualitative content analysis. In addition, the study builds on prior literature by analysing not only the existence of impression management but also its potential correspondence in press articles.

Keywords: *attribution theory, case study, impression management, media, press releases*

1. INTRODUCTION

The purpose of this study is to analyze the media's reaction to impression management strategies in corporate disclosures. This paper uses the concept of corporate image in order to assess how impression management may be used to favorably design the company's investment image and to evaluate the manner in which this view is further transposed in press articles. While corporate image is the "result of a complex impression formation process" (Williams & Moffitt, 1997, pg. 239) impression management may influence this process it as it entails the tendency "to control and manipulate the impression conveyed to users of accounting information" (Clatworthy & Jones, 2001, pg. 311).

The study draws on the case of OMV Petrom. The company is majority-owned by the Austrian parent OMV and it is a key player in the oil and gas industry in Central and Eastern Europe. In 2015 OMV Petrom faced the first loss following its 2004' privatization. Consequently, this major predicament may determine the managers to use biased disclosures (Aerts, 2005; Merkl-Davies & Brennan, 2007) in order to positively frame the investment image of the company.

The corporate press releases issued by the company in 2015 were considered. A meaning-oriented content analysis with a focus on the attributional bias was performed. Particularly, the causal explanations of performance outcomes were scrutinized in order to assess the manner in which negative outcomes are presented and explained by the management of the company. The content of the press releases was further compared with the press articles to evaluate the effectiveness of manipulative disclosures.

This paper answers previous calls to analyze impression management by means of case studies and qualitative content analysis (Merkl-Davies & Brennan, 2007). It extends previous research that focused mainly on routine counting of positive and negative words (Clatworthy & Jones, 2003; Feldman, Govindaraj, Livnat & Segal, 2010; García Osma & Guillamón-Saorín, 2011; Guillamón-Saorín & Martínez-López, 2013; Henry, 2008; Price, Doran, Peterson & Bliss, 2012; Rutherford, 2005), by performing a meaning-oriented content analysis. In addition, the paper builds on prior literature by analyzing not only the existence of impression management (García Osma & Guillamón-Saorín, 2011; Guillamón-Saorín & Martínez-López, 2013; Short & Palmer, 2003) but also its potential correspondence in press articles. The motivation resides in the fact that "mass media are stunningly successful in telling people what to think about and how to think about" (Zhang, 2016,

pg. 3). As such, analyzing if the company manipulates its investment image and whether this view is further reflected in the media becomes relevant for the purpose of this study.

A review of the existing literature is included in section 2. Section 3 and 4 develops the research background and methodology while section 5 presents the findings followed by discussions. The last section concludes the paper.

2. LITERATURE REVIEW

Impression management represents "the process by which people control the impressions others form of them" (Leary & Kowalski, 1990, pg. 34). In a corporate reporting context, impression management strategies may be used in order to influence stakeholders' perceptions of corporate performance (Merkl-Davies & Brennan, 2011). By anticipating the audience's behaviour, negative evaluations such as unfavourable analyst reports, credit ratings, or news reports (Prakash & Rappaport, 1977 as cited in Merkl-Davies & Brennan, 2011) can be avoided.

In this view, previous researchers performed empirical studies that have evaluated the tone of corporate narratives either by manual coding keywords and/or statements (Brennan, Guillamon-Saorin & Pierce, 2009; Clatworthy & Jones, 2003; García Osma & Guillamón-Saorín, 2011; Guillamón-Saorín & Martínez-López, 2013;) as positive or negative or by relying on computerized analysis (Feldman et al., 2010; Price et al., 2012; Rutherford, 2005). The frequency of positive and negative words was further compared to the financial performance of the companies considered, in order to assess whether corporate disclosures are used to convey a positive investment image. As such, the existing literature leads us to assume that corporate narratives emphasize positive aspects of performance while downplaying negative results (Merkl-Davies & Brennan, 2007).

However, these form-oriented studies involve "the reduction of large amounts of text to quantitative data" and consequently are unable to "provide a complete picture of meaning" (Merkl-Davies & Brennan, 2007, pg. 39). In contrast, meaning-oriented studies focused on the use of self-serving attributional statements. Researchers broadly agree that causal explanations of performance outcomes are biased, i.e. there is a tendency to attribute positive outcomes to internal factors (entitlement) and negative ones to external causes (excuse) (Aerts, 2005; Aerts & Cheng, 2011; Aerts & Tarca, 2010; Elsbach & Sutton, 1992; Hooghiemstra, 2008). In addition, positive outcomes may be emphasized by asserting that they were recorded in spite of negative external causes (enhancement) (Aerts, 2005; Aerts & Cheng, 2011; Aerts & Tarca, 2010; Elsbach & Sutton, 1992). What is more, negative outcomes may be justified as an intermediary stage in the pursuit of higher goals (justification) (Aerts & Tarca, 2010) or by stressing the fact that they were caused by "internal events or actions that normally should have led to the contrary" (causality denial) (Aerts & Tarca, 2010, Appendix 1).

For the purpose of this study the agenda-building theory is used in order to understand the manner in which biased corporate narratives may be further transposed in press. As such, corporate press releases are considered an important information subsidy used by journalists that "can have a profound impact on shaping news content" (Kiousis, Popescu & Mitrook, 2007, pg. 150). However, although "press releases are clearly not strictly informational (…), it may be argued that news reports (…) are or should be" (Pander Maat, 2007, pg. 62). Considering the role of news media in shaping public opinion (i.e. agenda-setting theory) (Huang, 2006; Kiousis, Popescu & Mitrook, 2007; Kleinnijenhuis, Schultz, Utz & Oegema, 2015; Pollock & Rindova, 2003; Wanta, Golan, & Lee, 2004) we may assume that biased narratives which are further transposed in press articles may result in free publicity for companies (Pander Maat, 2007). As such, researchers suggest that journalists' positive or negative tone may influence the emotional perceptions of stakeholders and hence, "can influence how people think about a topic" (Kiousis, Popescu & Mitrook, 2007, pg. 151).

3. RESEARCH BACKGROUND

OMV Petrom is the largest integrated oil and gas company in Southeast Europe. The company is controlled by a foreign private investor OMV Aktiengesellschaft (51%) while the Romanian State holds 20.6%. The privatization of OMV Petrom was the result of the conditions imposed by the World Bank and the International Monetary Fund (Albu, Albu & Alexander, 2014; Lupu & Sandu, 2017). The company's change in ownership in 2004 was subject to increased critique. The main issues raised in the media related to the small value of the transaction and the lack of transparency of the entire process (Lupu & Sandu, 2017). This prompted the former Romanian company to legitimize the organizational changes within the society (Lupu & Sandu, 2017). Following privatization, OMV Petrom implemented the vision of the Austrian parent, and became a major competitor in the oil and gas industry in CEE. The positive effects of the change in ownership were reflected in an inherent transfer of practices that entailed an increased transparency of the reporting process and the adoption of sound corporate governance mechanisms (Albu, Albu, Bunea, Calu & Gîrbină, 2011; Albu, Lupu & Sandu, 2014).

The year 2015 finds the company in the media spotlight. While in 2013 OMV Petrom had the highest profit ever recorded by a Romanian company, in 2015 it incurred its first loss since privatization. As impression management may spring from "the degree of discrepancy between the image one would like others to hold of oneself and the image one believes others already hold" (Leary & Kowalski 1990, pg. 39), this case study enables the in-depth analysis of impression management and its related effectiveness on journalists.

4. RESEARCH METHODOLOGY

For the purpose of this study the quarterly press releases issued by the company in 2015 were considered. These corporate narratives were chosen because previous researchers suggest that press releases are an important information subsidy that can impact the news content (Kiousis, Popescu & Mitrook, 2007; Schafraad, van Zoonen & Verhoeven, 2016). Pilot testing of the data confirmed this assertion because the date of the press article generally matched the one of the press release or was written in a timeframe of two days after the corporate release. The Romanian version of the corporate narratives was gathered from the company's website (www.omvpetrom.com).

The media sources used in this study are *Capital, Adevărul, Curierul Național, Evenimentul Zilei, Gândul, Jurnalul Național* and *România Liberă*. Except for *Capital* which is a weekly journal, all the other journals are dailies. *Capital* is also the only media source which deals mainly with economic issues. The journals were chosen based on the monitoring report published online by the Romanian Bureau of Newspaper-circulation Auditing (BRAT) and are available both online and in paper format. A total number of 28 press articles were collected via the news-agency websites. The identification was made considering a timeframe of four days following the one in which the corporate press release was issued by OMV Petrom.

Acknowledging the fact that "impression management techniques are subtle and sophisticated, and therefore complex" a manual content analysis was conducted (Brennan, Guillamon-Saorin & Pierce, 2009, pg. 801) in order to identify potential attributional bias in the corporate narratives.

Drawing on the methodology developed by previous researchers (Aerts, 2005; Aerts & Cheng, 2011; Aerts & Tarca, 2010; Hooghiemstra, 2003, 2008), this paper used a deductive approach. The first procedure involved the identification of attributional statements i.e. "a phrase or a sentence in which a corporate event or performance outcome is linked with a reason or a cause for the event or outcome" (Aerts, 2005, pg. 500). Both explicit and implicit attributions were coded. An explicit attribution was made when a connective word such as "because of", "in spite of", "due to" was used (Aerts & Tarca, 2010; Hooghiemstra, 2008). Implicit attributions were also considered when the cause and the effect were identified in the same paragraph (Hooghiemstra, 2008). When an outcome

was explained using multiple causes, each combination was recorded as a distinct statement (Hooghiemstra, 2003).

Following the identification of attributional statements, the second step was to distinguish between explained effects and explanatory factors. The explained effects were coded depending on their valence (whether the performance outcome had either a positive or a negative evolution).

The explanatory factors were analysed according to their locus of causality which can be either internal (managers' decisions, personnel, strategy, know-how, etc.) or external (economic situation, inflation, interest rate, etc.). In this view, previous researchers document a tendency to attribute positive outcomes to internal factors (entitlement) and negative ones to external causes (excuse) (Aerts, 2005; Aerts & Cheng, 2011; Aerts & Tarca, 2010; Elsbach & Sutton, 1992; Hooghiemstra, 2008).

Moreover, the direction of the cause - effect relationship was also assessed (i.e. identical, linked by words such as "due to", or opposite when the cause and the effect are linked by words such as "in spite of"). This dimension is considered in order to extend the analysis to the use of enhancements (when positive outcomes are emphasized by asserting that they were recorded in spite of negative external causes), justifications (when negative outcomes are presented as an intermediary stage in the pursuit of higher goals) and causality denials (when negative outcomes are allocated to internal factors that should have normally generated a positive result).

Comparisons were made between the content of the news articles and corporate disclosures in order to assess the effectiveness of impression management strategies. The analysis was performed through a process of close reading of documents with a view of identifying whether the cause-effect relationships are transposed in news articles. As such, each cause identified by the journalists for a particular outcome was compared to the one provided in the corporate narratives in order to find a potential correspondence between the two. In addition, the use of companies' direct quotes in a press article was analyzed (Wonneberger & Jacobs, 2017). While their use provides authenticity and reliability to the text (Gibson & Zillmann, 1993 as cited in Rosenkranz & Pollach, 2016) they can also include potential impression management strategies (Rosenkranz & Pollach, 2016).

5. RESULTS AND DISCUSSIONS

In Romania, OMV Petrom accounts for almost the entire crude oil production. The Upstream division of the company explores for and extracts oil and natural gas. Consequently, the steep decrease in oil prices in 2015 negatively affected the results of this business segment. The influence of this factor was therefore mentioned and highlighted in the corporate narratives:

> Nevertheless, the Upstream result was affected by the sharp drop in oil prices, which was only partly compensated by positive FX effects and slightly higher sales volumes. (OMV Petrom, 2015a)
>
> In the first nine months of 2015, the Group financial performance was severely affected by the approx. 50% drop in oil prices. (OMV Petrom, 2015c)
>
> In 2015, the steep drop in oil price severely affected our Group's financial results. (OMV Petrom, 2016)

These examples illustrate the manner in which the negative outcomes are explicitly attributed to an external factor (i.e. the steep decrease in the oil price). Connective words such as "was severely affected by" were used in order to emphasize the strong relationship between the cause and the effect and the negative impact of the former on the latter. Similar to the case of an economic crisis, the link between the cause and its corresponding negative effects can be easily anticipated by the audience. For this reason, negative results may be harder to conceal.

> In response to the low crude price environment, we scaled back our 2015 group investments by approx. 30% yoy and continued to optimize our cost structure, measures which are expected to protect our free cash flow position. Nevertheless, these initiatives will impact our hydrocarbon production in the future. (OMV Petrom, 2015a)

> In the first six months, we have focused on ensuring a sustainable and profitable business in a potentially persistent low crude price environment. We have implemented measures to reduce operating costs and increase the efficiency of our operations, while maintaining safety as a top priority. In order to preserve cash flow and maintain a strong balance sheet our investments were prioritized based on long term value generation and therefore the Group achieved a capital spending drop of approx. 30%, in line with expectations. (OMV Petrom, 2015b)

These quotations present the managerial decisions that were taken in order to mitigate the negative impact of the decline in the oil price. Although negative in nature, these outcomes are justified as an intermediary step towards maintaining “a sustainable and profitable business”. On the one hand, by emphasizing these initiatives, an overall control of the situation is expressed. On the other hand, the use of justifications proves the inherent intention of the managers to alleviate the negative side of these decisions.

> Throughout the year, we responded swiftly to the weakening market fundamentals and successfully delivered on our promises to contain costs and maintain a competitive position, while reducing CAPEX by 38% compared to 2014. (OMV Petrom, 2016)

The above excerpt further underscores the abovementioned observations. What is more, we may also notice how the reduced level of the investments is presented using a positive tone, rather than a negative one, by highlighting the company’s ability to adapt to “the weakening market fundamentals”. The perspective of the reader is therefore switched, in order to positively portray the corporate results. In a similar vein, the following statements are used by the CEO in order to reinforce a positive image by stressing the benefits of the company’s change in ownership while also highlighting the fact that the entire organization supports the managerial decisions.

> In addition, we continued our efforts across the entire organization to contain capital spending and operational costs. I am particularly encouraged by the good response of the entire organization which shows the cultural change and business agility we have implemented at OMV Petrom over the last decade. (OMV Petrom, 2015c)

Related thereto, another technique that was identified entailed the tendency to present and emphasize the positive outcomes by contrasting them with the negative ones. In this view, we may notice the manner in which the “strong Downstream Oil performance” was attributed to the business model used by the company, and hence, to an internal factor (entitlement) while the increase in the sales volumes was recorded “despite the weak market environment” (enhancement). As a result, the use of these positive results “partially counterbalanced” the negative tone of the unfavourable Upstream result.

> The lower Upstream results were partially counterbalanced by the strong Downstream Oil performance, supported by growing refining margins and lower cost for crude, thus capitalizing on our integrated business model. In addition, we increased marketing sales volumes benefitting from higher oil products demand. In Downstream Gas, our gas sales volumes increased by 10%, despite the weak market environment. (OMV Petrom, 2015b)

This observation is therefore consistent with the study conducted by Aerts in 2005, who characterized the abovementioned technique as:

> …more subtle mechanisms to cope with an accountability predicament due to a negative financial performance experience, where positive pieces of accounting information are actively picked up in an attributional mode to construct an aura of optimism around an inherently negative financial base signal (pg. 515).

In order to analyse the media's response to corporate press releases a timeframe of four days following the publication of the narratives on the company's website was considered. Each press release had either one or two associated articles in the media, although there were also some which were not covered at all by some journals. The analysis of the seven media sources considered in this study, revealed the fact that only 3 out of 28 press articles interpreted the corporate press releases issued by the companies. The remainder of 25 articles provided a mere reiteration of the information disclosed by the company either in the press release or in the associated interim report. To further illustrate the abovementioned observation, Table 1 includes the percentages related to the direct quotations used in the press articles. Note that each quarterly press release is either followed by none or multiple news articles in a journal. The highest impact on journalists had the corporate narratives issued for the last quarter (10 articles released by 6 journals).

Table 1. Direct quotations used in press articles

	Q1	Q2	Q3	Q4
Adevărul	75%	100%	60%	91%
	-	-	-	18%
	-	-	-	0%
Capital	50%	50%	30%	55%
	-	-	0%	45%
Curierul Național	50%	100%	70%	100%
	50%	-	-	100%
Evenimentul Zilei	100%	100%	-	45%
	-	13%	-	-
Gândul	38%	-	-	100%
Jurnalul Național	-	0%	-	0%
România Liberă	0%	100%	-	-

Notes: Direct quotations refer to excerpts from the CEO's statement in which she provides explanations and interpretations of the main quarterly results. The percentages were computed as the number of attributional statements included in the news article on the total number of attributional statements in the CEO's statement from the press release.
Source: author's computation

While journalists make use of these quotations in order to provide authenticity to the text (Gibson & Zillmann, 1993 as cited in Rosenkranz & Pollach, 2016), the results highlight the fact that in many cases, the CEO's statement is actually transposed in the press articles. In other words, the intended message of the managers goes to the reader in its initial form. Although *Jurnalul Național* does not use direct quotation, the content of the texts does not challenge or interpret the corporate narratives. As mentioned before, all the press articles included in the table are, in essence, restatements of the corporate narratives. This observation is consistent with the assertion made by Pander Maat (2007, pg. 61):

> …although reusing another's writings is considered a cardinal sin in academic genres, it seems to be the rule in journalistic discourse. Once the press release material is accepted, it can be fully appropriated by the journalist."

As previously mentioned, only 3 out of 28 press articles analyzed the corporate disclosures and even challenged the information therein. The main issue raised by the media was the fact that the steep decrease in the oil price was not reflected in the fuel price, paid by the customers.

> At international level, fuel prices have fallen, in line with oil price developments. In Romania, however, the pace of pump price cuts was not the same, staying among the largest in the European Union. (Curierul Național, 2016, February 19)

> Price increases have exceeded those recorded in Austria, the country of origin of the main producer of fuels in Romania, namely OMV Petrom, but also those in the EU 28. (România Liberă, 2015, May 18)

What is more, the journalists attributed this "abnormal" increase in the fuel price to the company's intention to minimize the loss incurred in the Upstream segment:

> The exploration and production sector, the company's main profit center, was heavily affected by a 50% drop in oil barrel (…). Petrom may have put pressure on the price of gasoline to recover partially from falling profits. (România Liberă, 2015, May 18)

Related thereto, one of the press articles clearly articulates the fact that although the Upstream business segment was affected by the steep decrease in the oil price, the Downstream segment benefited from this negative evolution. While the fuel price increased, the refining margins had the same evolution which resulted in higher profits for the Downstream segment.

> In a vague language, Petrom explains in the financial report that the results of the division practically doubled, from 654 million lei to 1,315 billion lei, due to the increase in the refining margins due to the good operational performance, but also due to the increase of the volumes marketed petroleum products and margins (…). Larger product margins mean higher profit per litre of fuel sold by the company. (Adevărul, 2016, February 19)

On the one way, the results highlight the importance of journalists' role in filtering and interpreting corporate disclosures. By doing so, an alternative perspective may be provided to the audience which may be relevant in their decision making process. On the other hand, the results show that the vast majority of the press articles are merely transposing the corporate information. Consequently, the "crude" message of the companies' representatives can be delivered to the audience without being "refined" by the journalists. As previous researchers pointed out, although "press releases are clearly not strictly informational (…), it may be argued that news reports (…) are or should be" (Pander Maat, 2007, pg. 62).

6. CONCLUSIONS

This paper contributes to literature by scrutinizing the manner in which the biased content of corporate narratives is further transposed in the news-agency releases. The results provide partial support to the existing literature which documented a general tendency to conceal the negative results when companies face a downturn in their financial performance (Merkl-Davies & Brennan 2007). In turn, the case study revealed the management' use of defensive tactics such as excuses and justifications. Moreover, positive results were also highlighted in order to mitigate the negative effects on the company's investment image. In doing so, the managers made use of acclaiming tactics such as entitlements and enhancements. The subsequent analysis of media sources revealed the fact that the corporate narratives are reiterated in the press articles to a high extent. Consequently, the effectiveness of impression management strategies was documented, as the intended message of the management reached the audience without being rigorously analyzed and challenged by the journalists.

The study may be of interest to the business media, companies and investors alike, because corporate narratives may be used “to create an impression at variance with an overall reading of the report” (Stanton, Stanton & Pires, 2004, pg. 57). Secondly, this paper may be useful for researchers because it evaluates the effectiveness of impression management strategies and not only its presence. Last but not least, accounting policy-makers and professional bodies should acknowledge the fact that, although unaudited, interim reports and corporate press releases are used by journalists as an information source for news articles. As a result, opportunistic behaviors may impede the faithful representation of information (Beattie & Jones, 2000; Clatworthy & Jones, 2003, 2006; Guillamón-Saorín & Martínez-López, 2013) by favorable portraying the investment image of the company and possibly leading to capital misallocations (Merkl-Davies & Brennan, 2007).

Future research may evaluate how impression management strategies are used across multiple disclosure mechanisms such as interim reports, annual reports, earnings press releases, earnings conference calls and presentations prepared for investors.

BIBLIOGRAPHY

Adevărul (2016, February 19). Surpriza din rezervor: Benzinăriile, noua “vacă de muls” pentru Petrom. Staţiile de distribuţie au realizat un profit de peste un miliard de lei [in Romanian]. *Adevărul.* Retrieved from https://adevarul.ro

Aerts, W. (2005). Picking up the pieces: Impression management in the retrospective attributional framing of accounting outcomes. *Accounting, Organizations and Society*, 30(6), 493–517.

Aerts, W. & Cheng, P. (2011). Causal disclosures on earnings and earnings management in an IPO setting. *Journal of Accounting and Public Policy*, 30(5), 431–459.

Aerts, W. & Tarca, A. (2010). Financial performance explanations and institutional setting. *Accounting and Business Research,* 40(5), 421–450.

Albu, C. N., Albu, N. & Alexander, D. (2014). When global accounting standards meet the local context- Insights from an emerging economy. *Critical Perspectives on Accounting*, 25(6), 489–510.

Albu, N., Albu, C. N., Bunea, Ș., Calu, A. D. & Gîrbină, M. M. (2011). A story about IAS/IFRS implementation in Romania. *Journal of Accounting in Emerging Economies*, 1(1), 76–100.

Albu, N., Lupu, I. & Sandu, R. (2014). Multinationals as vectors of corporate governance improvement in emerging economies in Eastern Europe: A case study. In S. Boubaker & D. K. Nguyen (Eds.). *Corporate Governance in Emerging Markets. CSR, Sustainability, Ethics & Governance*, Springer, Verlag Berlin Heidelberg, pg. 331–349.

Beattie, V. & Jones, M. J. (2000). Impression management: The case of inter-country financial graphs. *Journal of International Accounting, Auditing & Taxation*, 9(2), 159–183.

Brennan, N.M., Guillamon-Saorin, E. & Pierce, A. (2009). Impression management: Developing and illustrating a scheme of analysis for narrative disclosures – A methodological note. *Accounting, Auditing and Accountability Journal*, 22(5), 789–832.

Clatworthy, M.A. & Jones, M.J. (2001). The effect of thematic structure on the variability of annual report readability. *Accounting, Auditing and Accountability Journal*, 14(3), 311–326.

Clatworthy, M.A. & Jones, M.J. (2003). Financial reporting of good news and bad news: Evidence from accounting narratives. *Accounting and Business Research*, 33(3), 171–185.

Clatworthy, M.A. & Jones, M.J. (2006). Differential patterns of textual characteristics and company performance in the chairman's statement. *Accounting, Auditing and Accountability Journal*, 19(4), 493–511.

Curierul Național (2016, February 19). Sondele OMV Petrom au extras pierderi în 2015 [in Romanian]. *Curierul Național.* Retrieved from https://www.curierulnational.ro

Elsbach, K.D. & Sutton, R.I. (1992). Acquiring organizational legitimacy through illegitimate actions: A marriage of institutional and impression management theories. *Academy of management Journal,* 35(4), 699–738.

Feldman, R., Govindaraj, S., Livnat, J. & Segal, B., (2010). Management's tone change, post earnings announcement drift and accruals. *Review of Accounting Studies*, 15(4), 915–953.
García Osma, B. & Guillamón-Saorín, E. (2011). Corporate governance and impression management in annual results press releases. *Accounting, Organizations and Society*, 36(4), 187–208.
Guillamón-Saorín, E. & Martínez-López, F. J. (2013). Corporate financial communication and the internet: Manipulating investor audiences?. *Online Information Review*, 37(4), 518–537.
Henry, E. (2008). Are investors influenced by how earnings press releases are written?. *Journal of Business Communication*, 45(4), 363–407.
Huang, Y.H. (2006). Crisis situations, communication strategies, and media coverage: A multicase study revisiting the communicative response model. *Communication research*, 33(3), 180–205.
Hooghiemstra, R. (2003). The Construction of Reality: Cultural differences in self-serving behaviour in accounting narratives. Rotterdam: ERIM Ph.D. Series Research in Management.
Hooghiemstra, R. (2008). East-West differences in attributions for company performance: A content analysis of Japanese and US corporate annual reports. *Journal of Cross-Cultural Psychology*, 39(5), 618–629.
Kiousis, S., Popescu, C. & Mitrook, M. (2007). Understanding influence on corporate reputation: An examination of public relations efforts, media coverage, public opinion, and financial performance from an agenda-building and agenda-setting perspective. *Journal of Public Relations Research,* 19(2), 147–165.
Kleinnijenhuis, J., Schultz, F., Utz, S. & Oegema, D. (2015). The mediating role of the news in the BP oil spill crisis 2010: How US news is influenced by public relations and in turn influences public awareness, foreign news, and the share price. *Communication Research*, 42(3), 408–428.
Leary, M.R. & Kowalski, R.M. (1990). Impression management: A literature review and two-component model. *Psychological Bulletin,* 107(1), 34–47.
Lupu, I. & Sandu, R. (2017). Intertextuality in corporate narratives: A discursive analysis of a contested privatization. *Accounting Auditing & Accountability Journal,* 30(3), 534–564.
OMV Petrom (2015a). OMV Petrom Group: results for January-March 2015. Retrieved from http://www.omvpetrom.com.
OMV Petrom (2015b). OMV Petrom Group: results for Q2 and January-June 2015. Retrieved from http://www.omvpetrom.com.
OMV Petrom (2015c). OMV Petrom Group: results for Q3 and January- September 2015. Retrieved from http://www.omvpetrom.com.
OMV Petrom (2016). OMV Petrom Group: results for Q4 and January – December 2015. Retrieved from http://www.omvpetrom.com.
Pander Maat, H. (2007). How promotional language in press releases is dealt with by journalists: Genre mixing or genre conflict?. *The Journal of Business Communication*, 44(1), 59–95.
Pollock, T. & Rindova, V. (2003). Media legitimation effects in the market for initial public offerings. *Academy of Management Journal*, 46(5), 631–42.
Price, S. M., Doran, J. S., Peterson, D. R. & Bliss, B. A. (2012). Earnings conference calls and stock returns: The incremental informativeness of textual tone. *Journal of Banking & Finance,* 36, 992–1011.
Merkl-Davies, D.M. & Brennan, N.M. (2007). Discretionary disclosure strategies in corporate narratives: Incremental information or impression management?. *Journal of Accounting Literature*, 26(1), 116–194.
Merkl-Davies, D.M. & Brennan, N.M. (2011). A conceptual framework of impression management: New insights from psychology, sociology and critical perspectives. *Accounting and Business Research*, 41(5), 415–437.
România Liberă (2015, May 18). In doar cinci luni, rafinăriile au scumpit cu un sfert benzina [in Romanian]. *România Liberă.* Retrieved from https://romanialibera.ro
Rosenkranz, J. & Pollach, I. (2016). The framing and reframing of corporate financial results: How corporate earnings releases become news. *Corporate Communications: An International Journal*, 21(1), 103–119.

Rutherford, B.A. (2005). Genre analysis of corporate annual report narratives: A corpus linguistics-based approach. *Journal of Business Communication*, 42(4), 349–378.

Schafraad, P., van Zoonen, W. & Verhoeven, P. (2016). The news value of Dutch corporate press releases as a predictor of corporate agenda building power. *Public Relations Review*, 42(3), 451–458.

Short, J. C. & Palmer, T. B. (2003). Organizational performance referents: An empirical examination of their content and influences. *Organizational Behaviour and Human Decision Processes*, 90(2), 209–224.

Stanton, P., Stanton, J. & Pires, G. (2004). Impressions of an annual report: An experimental study. *Corporate Communications: An International Journal*, 9(1), 57–69.

Wanta, W., Golan, G. & Lee, C. (2004). Agenda setting and international news: Media influence on public perceptions of foreign nations. *Journalism and Mass Communication Quarterly*, 81(2), 364–77.

Williams, S.L. & Moffitt, M.A. (1997). Corporate image as an impression formation process: Prioritizing personal, organizational, and environmental audience factors. *Journal of Public Relations Research*, 9(4), 237–258.

Wonneberger, A., & Jacobs, S. (2017). Media positioning: comparing organizations' standing in the news. *Corporate Communications: An International Journal*, 22(3), 354–368.

Zhang, X. (2016). Estimating the weights of media tonalities in the measurement of media coverage of corporations. *Communication Research*, 1–25.

SELF-SERVING CAUSAL ATTRIBUTIONS IN THE ANNUAL REPORTS – A LONGITUDINAL CASE STUDY

Maria-Silvia SĂNDULESCU
The Bucharest University of Economic Studies, Romania
maria.sandulescu@cig.ase.ro

Abstract
This study evaluates the use of self-serving disclosures through corporate narratives in a context of post-socialist corporate privatization. The paper considers the case of OMV Petrom, the largest oil and gas producer in Central and Eastern Europe with a view of analysing the evolution of the messages used in framing the success of the company. Drawing on the social psychology perspective on impression management, attributional statements are identified in the corresponding annual reports issued by the company from 2005 to 2011. The results provide partial support for existing literature as corporate narratives were influenced by the inherent scrutiny of a contested privatization. The change in ownership was reflected in a defensive stance of the causal attributions used, although acclaiming tactics were envisaged across the entire period of analysis. However, the study further identifies a distinct period (following the 2008 economic crisis) when the company started to emphasize the positive outcomes of the privatization by adopting a laudatory language.

Keywords: *annual report, attribution theory, case study, impression management, privatization*

1. INTRODUCTION

The purpose of this paper is to analyse corporate impression management through annual reports in a context of post-socialist corporate privatization. OMV Petrom is a leader in the oil and gas industry, its dominant position being recognized in South East Europe and also in Romania. In 2004 the company was the subject of a forced and contested privatization, being involved in several corporate scandals. As a result, this represents an opportunity to study in depth the post-privatization narratives and the evolution of the messages used in framing the success of the company. In this view, the annual reports, issued by OMV Petrom from 2005 to 2011, will be considered. The period of analysis facilitates the identification of potential changes in the attributional styles that can be the result of "different approaches to managing impressions after performance upturns and downturns" (Lee, Peterson & Tiedens, 2004, pg. 1647).

The research at hand adopts a social psychology perspective on impression management by making reference to the attribution theory which entails the managers' "tendency to take personal credit for successes and deny responsibility for failures by ascribing them to internal and external causes, respectively" (Hooghiemstra, 2008, pg. 618). This self-serving bias may further result in short-term capital misallocations (Merkl-Davies & Brennan, 2007). However, this concept has been studied mainly in developed economies such as US (Baginski, Hassell & Hillison, 2000; Henry, 2008; Price, Doran, Peterson & Bliss, 2012; Yuthas, Rogers & Dillard, 2002) and UK (Brennan, Guillamon-Saorin & Pierce,2009; Clatworthy & Jones, 2003, 2006; Rutherford, 2005; Yekini, Wisniewski & Millo, 2015). It is currently unclear if there are differences in the use or the abuse of this opportunistic behaviour in emerging economies. In this respect, Tarca, Street and Aerts (2011, pg. 53) points out to "significant differences between each country's institutional setting making it vital for regulators to understand how national features influence narrative reporting". The case of the countries in Central and East Europe may be of a particular interest since they are in the pursuit of economic development, facing "higher growth rates and profitability" (Albu & Albu, 2012, pg. 341). Moreover, in this economic background, transparency can be considered a scarce resource and previous research (Albu, Albu, Bunea, Calu & Gîrbină, 2011) perceive OMV Petrom as being "a model of good practices" (Albu, Lupu & Sandu, 2014, pg. 337). However, Cho, Michelon and Patten (2012, pg. 35) draw attention to the fact that in such conditions, the users of accounting information may "fail to

realize the inherent biases in the reporting, and continue to laud the practice as evidence of increased corporate transparency and accountability".

In this view, I analyse causal explanations of performance outcomes in order to identify potential self-serving biases. Recent evidence suggests that managers make use of explanatory statements (Aerts& Tarca, 2010) to present the accounting information in a manner that can distort the decision making process of the stakeholders (Clatworthy & Jones, 2001, 2006) and thus "encouraging others to see the world in a particular way by making certain aspects of reality more, and others less accessible or noticeable" (Evans & Pierpoint, 2015). As a result, attributional statements are identified in the corresponding annual reports issued by OMV Petrom S.A from 2005 to 2011. Following previous research (Aerts & Cheng, 2011; Aerts & Tarca, 2010), explicit and implicit attributions are considered in order to analyse the explained effects, namely the performance outcomes, and the explanatory factors attached.

The paper contributes to the impression management literature by using the background of an emerging economy as a mean of providing explanations. The study identifies two periods that triggered a different managerial behaviour: the period following privatization (i.e. from 2005 to 2008) and the period following the economic crisis (i.e. from 2009 to 2011). Following previous research on privatization (Craig & Amernic, 2004, 2006, 2008) I anticipated the attribution of the subsequent success of the company only to the change in ownership. In a similar vein, the attributional style was expected to remain unchanged even in periods of upturns and downturns (Clatworthy & Jones, 2003). However, contrary to prior literature, the results underscore the fact that in the first period considered, the managers restricted themselves from using biased attributions even when the company faced the predicament of the economic crisis. This transparency may have been triggered by the scrutiny of the environment in which the company operated, as a result of the strongly disputed contract. Biased disclosure were documented only in the second period considered, when OMV Petrom started to highlight the benefits of the privatization by using a laudatory language while also maintaining a defensive stance.

The theoretical and research background are introduced in section 2 and 3 respectively. Section 4 sets out the methodology applied in this study. Section 5 presents and discusses the results. The paper concludes in section 6.

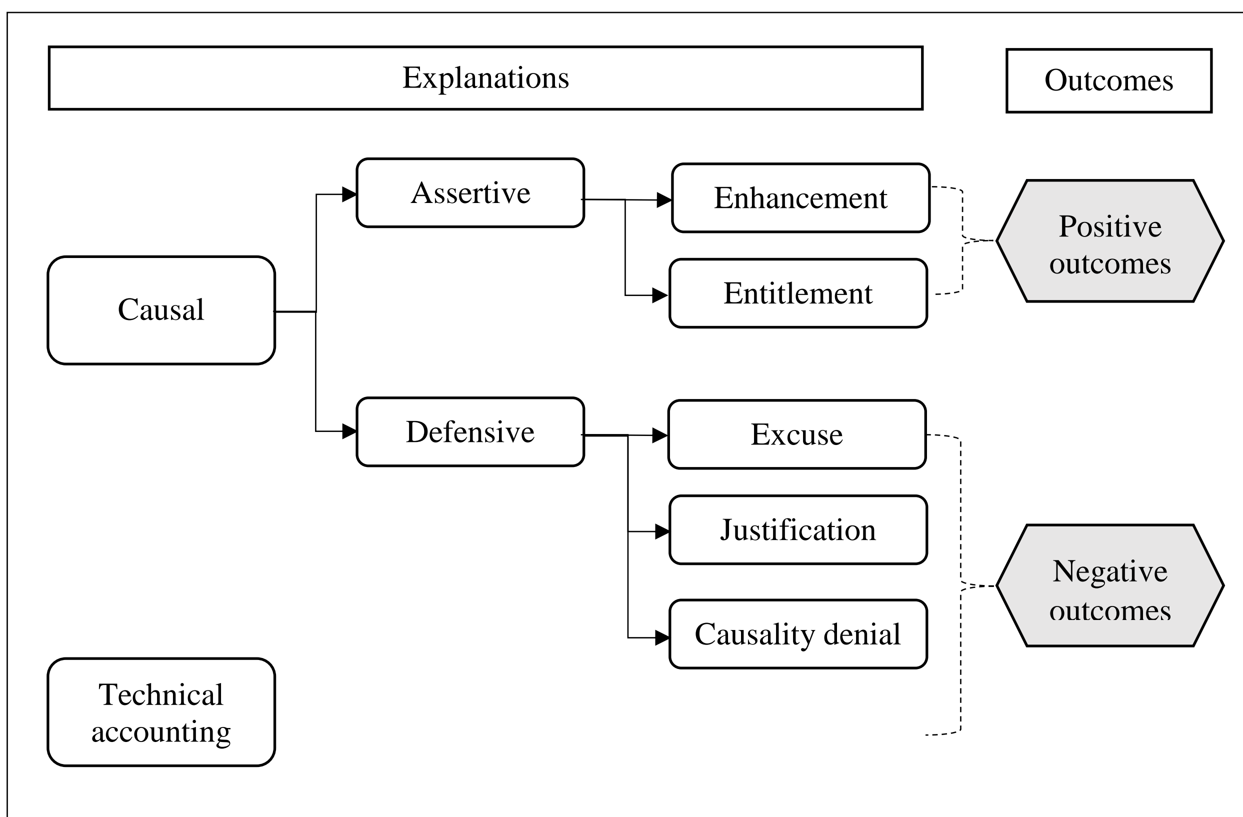
2. THEORETICAL BACKGROUND

A considerable amount of literature investigated causal attributions which defines "the way we generate explanations for social behaviours and events" (Lee, Peterson & Tiedens, 2004, pg. 1636). On the one hand it has been noticed the managers' tendency to attribute positive events to internal causes (entitlement) (Aerts, 2005; Aerts & Cheng, 2011;Aerts& Tarca, 2010; Elsbach &Sutton, 1992; Hooghiemstra, 2008). Moreover, positive outcomes can be described as being accomplished in spite of negative external circumstances (enhancement) (Aerts, 2005; Aerts & Cheng, 2011; Aerts & Tarca, 2010; Elsbach & Sutton, 1992). However, a combination between these two assertive types of explanations is usually reported in the literature (Aerts, 2005; Elsbach & Sutton, 1992).

On the other hand, previous researchers also documented the existence of a defensive explanation pattern. As such,the attention of the readers can be shifted away in a self-serving manner (Elsbach & Sutton, 1992) by attributing negative events to external causes (excuse). Moreover, negative outcomes can be presented by indicating "its intermediary character as a step to achieve higher goals" (justification) (Aerts & Tarca, 2010, Appendix 1) or by emphasizing the "internal events or actions that normally should have led to the contrary" (causality denial) (Aerts & Tarca, 2010, Appendix 1). However, in the study conducted in 2004 by Lee, Peterson and Tiedens, the authors argue that "making external attributions for negative events could be disserving for business organizations" (pg. 1639). According to the authors, "external and uncontrollable attributions suggest that organizations are unable to control critical outcomes, they violate others' expectations, leading to worse impressions for the organizations." (pg. 1644).

It has been noticed that organizations make more causal attributions regarding the positive outcomes in order to emphasize or frame a favourable performance while downplaying the existence of negative ones (Hooghiemstra, 2008; Lee, Peterson & Tiedens, 2004). In other words they may be regarded as "publicly communicated discourse more reflective of impression management strategies." (Lee, Peterson & Tiedens, 2004, pg. 1647). Acknowledging the fact that, "whenever we 'persuade' someone, we do so by getting that person to "look at things from our point of view", share our attention structure" (Lanham, 1993, pg. 227 as cited in Craig & Amernic, 2008), analysing these disclosures becomes relevant for the purpose of this paper. In this view, Figure 1 illustrates the explanatory patterns used in this study. In addition to the concepts that were previously described, I will also consider technical accounting explanations. Particularly, this concept entails a cause-effect relationship that is explained in accounting terms. Its use may denote a lack of responsibility (Hooghiemstra, 2003) and it is generally associated with negative results (Aerts & Cheng, 2011; Aerts & Tarca, 2010; Hooghiemstra, 2003)

Figure 1. Types of explanations and their related association with the valence of the outcomes



Source: created by the author following the classification proposed by Aerts and Tarca (2010)

3. RESEARCH BACKGROUND

3.1 A Romanian environment

Emerging countries from CEE underwent structural modifications of the economic and financial environment, "struggling to keep pace with the speed of transformation" (Berglöf& Pajuste, 2005, pg. 179). However, the inherent limitations of this rapid economic progress need to be considered. This European area is characterized by poor corporate governance mechanisms as a result of the low level of enforcement (Berglöf & Pajuste, 2005). The lack of transparency is further enhanced by ownership concentration and less demanding users of information (Albu & Gîrbină, 2015).

Acknowledging the fact that "making sense of events requires that we 'contextualize' them in some way" (Sayer, 1992, pg. 60 as cited in Welch, Piekkari, Plakoyiannaki & Paavilainen-Mäntymäki, 2011) the study analyses the impression management concept in a research background

of an emergent economy. An illustrative example of this continental setting is Romania, a country that faced a 50 years exposure period to communist ideology, when accounting was perceived as basic bookkeeping and the economic environment was characterized by increased secrecy (Albu, Albu & Alexander, 2014). In 2007 Romania became an EU member under the influence of EU Directives and IFRS (Albu & Albu, 2012). All these improvements created an economic environment proper for investments (Dumitru, Albu, Dumitru & Albu, 2014). However, the economic development of the country was “mainly driven by global forces” (Albu & Albu, 2012, pg. 342) and this is further reflected on a stock market characterized by a low level of liquidity (Albu, Albu & Alexander, 2014; Ionașcu, Ionașcu & Munteanu, 2011) and low enforcement mechanisms of corporate governance principles (Albu & Gîrbină, 2015). In this view recent evidence suggests that impression management may arise in situations when the capital market is weak (Guillamón-Saorín, García Osma & Jones, 2012) and corporate governance structures are inefficient (García Osma & Guillamón-Saorín, 2011). As a result, “learning from a particular case (conditioned by the environmental context) should be considered a strength rather than a weakness” (Dubois & Gadde, 2002, pg. 554) because “the case study has an important role to play in refining, verifying, testing and challenging existing theory” (Welch et al., 2011, pg. 755).

3.2 Romania’s petrol and OMV: OMV Petrom

In the context of EU accession, the World Bank and the International Monetary Fund requested the privatization of state-owned companies (Lupu & Sandu, 2017). The way in which this request was implemented in 2004 in the case of Petrom, was characterized by lack of transparency, influenced by political factors, the result being a highly contested privatization (Lupu & Sandu, 2017). In this respect, media strongly criticized the fact that the consultants contracted by the Romanian State, namely Credit Suisse First Boston, ING and Jacobs Consultancy, underestimated the oil price which in turn had a negative impact on the value of the oil reserves and consequently lowering the value of the company (Capital, 2006,June 22). Moreover, at the moment when the contract was signed Romania’s Prime Minister, Adrian Nastase, made the following assertion: "Whoever owns Petrom controls the Romanian economy and whoever dominates the economy can control politics". This statement emphasizes the real value of the company and the political interests attached.

Following privatization, Petrom began its transition process from a typical state-owned company, influenced by corruption to a private and competitive one. According to Romania’s Prime Minister the privatization represented “one of the most important moments in the fight against corruption”. The supervisory board (7 members) was entirely changed while the executive board maintained only two members from its previous structure. In addition, the size of the executive board decreased from 9 to 6 members. By implementing OMV vision, the company tried to gain its legitimacy that was negatively impacted by the privatization contract and its unfavourable conditions (Lupu & Sandu, 2017). In an emerging economy characterized by lack of transparency (Albu & Gîrbină, 2015), the company differentiated itself from local practices by becoming a benchmark in corporate reporting and corporate governance (Albu et al., 2011; Albu, Lupu & Sandu, 2014).

However, “a successful privatization from a financial and economic point of view does not automatically equate to social acceptability and legitimacy" (Lupu & Sandu, 2017, pg. 560). Moreover, the local environment and the inherent impact of corruption needs to be considered. In June 2016, the European Commission, represented by Directorate-General for Competition, made an unannounced inspection at OMV Petrom headquarter suspecting “anticompetitive behaviour aimed at hindering natural gas exports from Romania to other Member States” (European Commission, 2016). In addition, media has discovered that the company is also inspected by Directorate for Investigating Organized Crime and Terrorism for tax evasion (Bursa, 2016, July 25). As a result, the paper was designed to evaluate how the company’s management explain the upturns and downturns in the financial performance in the years following privatization. A potential laudatory language could have been used to frame “the sagacity of the privatization” (Craig & Amernic, 2004, pg. 46) by attributing positive results to internal factors while disregarding the inherent benefits generated by the real value of oil and gas resources.

4. DATA AND METHOD

In this study, causal explanations of performance outcomes were identified in the annual reports issued by OMV Petrom S.A. from 2005 to 2011. Under Law 297/2004 on capital markets and Regulation no. 1/2006 on issuers and operations with securities, companies have to issue quarterly, half-yearly and annual reports. As a result, before 2004 the company issued only one annual report in 2002 because this disclosure was not mandatory.

Following a study conducted by Lupu and Sandu (2017, pg. 560) which points out to the fact that "relations between Petrom and Romania remain tense, with the longstanding conflict having become even worse since the beginning of the economic crisis in 2008", the period was chosen in order to compare the manner in which attributions were made regarding performance upturns and downturns. The documents were gathered from the company's website (www.omvpetrom.com). The English version was considered in order to ensure reproducibility (Krippendorff, 2004).

A manual content analysis was performed. Although its complexity limits the sample size (Brennan, Guillamon-Saorin & Pierce, 2009), it allows the identification of meanings, unlike a computer-aided method (Krippendorff, 2004). For the purpose of this study the first procedure used was the identification of attributional statements. According to Aerts (2005, pg. 500) an attributional statement illustrates "a phrase or a sentence in which a corporate event or performance outcome is linked with a reason or a cause for the event or outcome". When an outcome was attributed to several causes, each combination was recorded as a separate statement (Hooghiemstra, 2003).

An attribution was explicitly made when connective words like "contributed to", "can be ascribed to", "because of", "as a result of" and "despite" were used (Aerts & Tarca, 2010; Hooghiemstra, 2008). I also identified attributions that were made implicitly when the cause-effect relationship was identified within the same paragraph (Hooghiemstra, 2008). As a result, the coding procedure distinguished between explained effects and explanatory factors. The dimensions used for the coding procedure were derived from previous literature (Aerts, 2005; Aerts & Cheng, 2011; Aerts & Tarca, 2010; Hooghiemstra, 2003, 2008).

The explained effects were coded according to their valence. Particularly I have analysed whether a positive/negative evolution of the outcome is mentioned. For this dimension the manager's point of view was used.

Similarly, the explanatory factors were coded on the following three dimensions:

1. Direction of the cause – effect relationship: identical, when elements have the same sign and are linked by words such as "due to", or opposite when a positive outcome was accomplished "in spite of" negative conditions.
2. Nature of the cause-effect relationship: the use of causal or technical-accounting language in describing the connection between the two elements.
3. Locus of causality: whether the outcome was caused by internal factors (managers' decisions, personnel, strategy, know-how, etc.) or external ones (economic situation, inflation, interest rate, etc.).

Two independent researchers coded separately the information using the coding dimensions for causes and effects. A test for reliability of the coding instructions was carried out on a sample of 4 annual reports "in addition to the data whose reliability is in question" (Krippendorff, 2004, pg. 212). Test results were compared and differences were discussed between the two coders. The coders coordinated on any disagreement situations until an agreement coefficient of 90 per cent was reached (Aerts & Tarca, 2010; Clatworthy & Jones, 2003). This coefficient was computed like the number of pairwise inter-coder agreements over the total number of pairwise judgments (Milne & Adler, 1999 as cited in Brennan, Guillamon-Saorin & Pierce, 2009).

5. RESULTS AND DISCUSSIONS

Table 1 presents details regarding the explained effects and factors identified following the analysis of the directors' reports issued by OMV Petrom from 2005 to 2011. An overall increase in the number of explained outcomes may be observed. Particularly, the number of explained outcomes doubled in 2011 compared to 2005. This evolution may highlight an inherent transfer of practices from the parent company, observation that is further documented by previous studies that support the company's increased level of transparency in reporting (Albu et al., 2011; Albu, Lupu & Sandu, 2014). In addition, a similar trend is followed by the number of explanations provided (a 72% increase was recorded in 2011 compared to 2005). Table 1 also underlines that the period following privatization (i.e. from 2005 to 2008) is characterized by the predominant use of a formal, technical-accounting language. However, this tendency does not hold for the entire period analysed. Particularly, starting with 2009 when the financial performance of the company improves, the same pattern is followed by the percentages related to the causal explanations provided.

Table 1. Amount of explanations

	2005	2006	2007	2008	2009	2010	2011
Number of explained outcomes	9	8	12	10	13	18	18
Number of positive outcomes	6	5	6	4	6	13	7
Number of negative outcomes	3	3	6	6	7	5	11
Number of explanations	25	18	32	25	27	32	43
Causal explanations (%)	52	33	47	32	44	62	53
Technical accounting explanations (%)	48	67	53	68	56	38	47
Profit	1,416	2,285	1,778	1,022	1,368	2,189	3,758

Notes: Causal (technical accounting) explanations (%) was measured as % of causal (technical accounting) explanations on total number of explanations provided (i.e. attributional statements). Profit figures are expressed in million RON. 1 EUR=4.637 RON (as of 14 January 2018).

Source: author's computation

Table 2 complements the aforementioned observations by illustrating a comparative analysis of the explanatory format of negative versus positive outcomes. On the one hand, we can easily remark the dominant tendency of explaining negative outcomes by using technical-accounting language, the highest percentage being recorded in 2008 (83%) when the economic crisis impacted corporate performance. Following this predicament, the percentages slightly decreased which highlights the fact that the company started to provide more causal explanations for its financial performance.

Table 2. Inconsistency in explanatory format

	2005	2006	2007	2008	2009	2010	2011
Negative outcomes explained in technical accounting language	50%	78%	62%	83%	57%	57%	52%
Positive outcomes explained in technical accounting language	48%	50%	47%	29%	54%	32%	40%

Notes: The percentages for negative (positive) outcomes explained in technical accounting language were computed as % of technical accounting explanations for negative (positive) outcomes on total number of explanations provided for negative (positive) outcomes.

Source: author's computation

On the other hand, the results also reflect an inconsistency in explanatory format as positive outcomes are generally followed by causal explanations, a tendency that is referred to in the literature as informality bias on positives (Aerts, 2005; Aerts & Tarca, 2010; Clatworthy & Jones, 2003, 2006). Furthermore, the same contrast between the two periods is emphasized. While from 2005 to 2007

there is a balance between the manners in which positive outcomes are explained, following 2008, the percentages decrease. In addition, the inconsistency in explanatory format for positive and negative outcomes is highlighted in 2008 when only 29% of the positive outcomes are presented using technical-accounting explanations (compared to the percentage recorded for negative ones, namely 83%). The following quotation further illustrates this tendency:

> EBIT of R&M this year reflects improvements as a result of process optimization, reduced costs and higher deliveries to both domestic and foreign markets. Despite these improvements, however, the result of R&M in 2008 was lower compared to 2007 because of the impairment recorded in Arpechim. This was the major factor behind the EBIT decrease of RON 830 mn for R&M, from RON (1,065) mn in 2007 to RON (1,895) mn in 2008. (OMV Petrom, 2008)

As per the aim of this study, Table 3 illustrates the analysis of self-serving attributional statements relative to the other types of explanations. In the first four years we can observe that managers restrict themselves from attributing positive outcomes only to internal factors. In contrast, the opposite attitude is manifested in the period following the economic crisis.

Table 3. Self-serving causal explanations

	2005	2006	2007	2008	2009	2010	2011
Number of explanations	25	18	32	25	27	32	43
Technical accounting explanations (%)	48	67	53	68	56	38	47
Use of entitlements and enhancements (%)	24	0	28	4	15	28	19
External attribution of positive outcomes (%)	20	22	3	16	7	25	9
Use of excuses, justifications and causality denials (%)	4	11	16	12	22	9	26
Internal attribution of negative outcomes (%)	4	0	0	0	0	0	0
Profit	1,416	2,285	1,778	1,022	1,368	2,189	3,758

Notes: Technical accounting explanations (%) was measured as % of technical accounting explanations on total number of explanations provided (i.e. attributional statements). Use of entitlements and enhancements (excuses, justifications and causality denials) (%) was measured as % of the sum of entitlements and enhancements (excuses, justifications and causality denials) on total number of explanations provided. External (internal) attribution of positive (negative) outcomes (%) was measured as % of external (internal) attributions made for positive (negative) outcomes on total number of explanations provided. Profit figures are expressed in million RON. 1 EUR=4.637 RON (as of 14 January 2018).

Source: author's computation

The following excerpt reflects the aforementioned observation. In this view, "the strong" results and "outstanding" performance were mainly attributed to internal factors (entitlement), while also highlighting the fact that the results were recorded in spite of an unfavourable context (enhancement).

> Against the backdrop of a volatile market environment in our operating region, our strong financial results and outstanding operational performance reflect the high investment efforts and effective cost and operational management but also supportive crude prices. (OMV Petrom, 2011)

The results also underscore a bias in the use of causal explanations for negative outcomes. As such, the company adopts a defensive stance that is maintained across the entire period of analysis (except for 2005) since no negative outcomes are allocated to internal causes. In this view, the following example highlights the use of an excuse to explain a negative outcome. As it may be noticed, the negative outcome was preceded by a positive one "which more than compensated" the impact produced by the disclosure of an unfavourable result.

> In R&M, EBIT improved significantly in 2010, compared to the last 6 years, as it reached a positive figure, for the first time since privatization, of RON 106 mn. The result was driven by flexible refining asset utilization with optimized operations at the Arpechim refinery ("stop-and-go" mode) coupled with increased utilization of our higher conversion refinery at Petrobrazi, which more than compensated for the lower marketing result where margins and volumes, especially in the commercial sector, were negatively affected by the weak economic environment. (OMV Petrom, 2010)

Considering the aforementioned results, this case study underlines that the period following privatization (i.e. from 2005 to 2008) is characterized by the predominant use of a formal, technical-accounting language that may overshadow the actual causality of events (Hines, 1988 as cited in Aerts & Tarca, 2010). While this rigid explanations are uncontroversial due to their generally accepted nature (Aerts, 2005; Aerts & Tarca, 2010; Hooghiemstra, 2003) they may also signal a "boilerplate" reporting in which disclosures follow a ritualised pattern, (Aerts & Tarca, 2010). However, this tendency does not hold for the entire period analysed. Particularly, starting with 2009 when the financial performance of the company improves, the same pattern is followed by the percentages related to the causal explanations provided. What is more, technical accounting explanations are associated more with negative outcomes, suggesting an inherent informality bias on positives (Aerts, 2005; Aerts & Tarca, 2010; Clatworthy & Jones, 2003, 2006). This further reflects the fact that the company operates in an environment with low accountability pressures which facilitates the existence of a bias in the nature (causal versus technical accounting) of explanations provided for outcomes (Aerts & Tarca, 2010).

Nevertheless, an interesting perspective is provided by the analysis of causal explanations of performance outcomes. Drawing on previous research on privatization (Craig & Amernic, 2004, 2006, 2008) I envisaged the attribution of the subsequent success of the company only to the change in ownership. In addition the attributional style was expected to favourably portray the financial performance of the company both in periods of upturns and downturns (Clatworthy & Jones, 2003). However, the results underscore the fact that following privatization the narratives are not used in a self-serving manner even when the company faced a major predicament such as the economic crisis. In this view, although the company does not operate in an institutional setting with high expected regulatory and litigation costs (Aerts & Tarca, 2010), the scrutiny of the environment may have played a major role because "a successful privatization from a financial and economic point of view does not automatically equate to social acceptability and legitimacy" (Lupu & Sandu, 2017, pg. 560). As such, the management adopted a defensive attitude which was maintained across the entire period analysed. Following the economic crisis, corporate narratives were used to highlight the benefits of the privatization and of the restructuring process performed, signalling a laudatory language.

6. CONCLUSIONS

This case study extends previous research by analysing the use of attributional biases in the context of a privatized company which faced performance upturns and downturns. The results provide partial support for the conclusions stated by previous researchers (Craig & Amernic, 2004, 2006, 2008; Clatworthy & Jones, 2003). Following privatization, the company focused predominantly on the restructuring process, increasing its efforts in order to gain the legitimacy of a contested change in ownership (Lupu & Sandu, 2017). The narratives highlight a defensive stance of the causal attributions made. However, the study further identifies a distinct period (following the 2008 economic crisis) when the company started to emphasize the positive outcomes of the privatization by adopting a laudatory language. In addition, the paper provides a perspective from an emerging country, in a research background that makes little use of these economic environments from CEE. In this setting, OMV Petrom apparently reaches the transparency expectations of the users but Cho, Michelon and Patten (2012, pg. 35) draws attention to the fact that they may "fail to realize the

inherent biases in the reporting, and continue to laud the practice as evidence of increased corporate transparency and accountability".

This paper may be useful for researchers, who wish to have a better understanding of impression management by providing insights from the case of an emerging economy, in a research background focused on the case of developed markets. In addition, the study provides evidence that is relevant for investors who should envisage potential self-serving practices in corporate narratives disseminated by companies. Last but not least, accounting policy-makers and professional bodies should acknowledge the impact of this opportunistic behaviour that can eventually lead to capital misallocations (Merkl-Davies & Brennan, 2007).

Future research may further address the case of a stigmatized company because previous literature that followed Erving Goffman's studies, (Evans & Pierpoint, 2015; Sutton & Callahan, 1987) emphasized a connection between impression management and stigma management. Moreover, the potential impact of biased causal attributions on users of the accounting information can be explored in an experimental setting.

Acknowledgments

This paper was co-financed by The Bucharest University of Economic Studies during the PhD program.

BIBLIOGRAPHY

Aerts, W. (2005). Picking up the pieces: Impression management in the retrospective attributional framing of accounting outcomes. *Accounting, Organizations and Society*, 30(6), 493–517.

Aerts, W. & Cheng, P. (2011). Causal disclosures on earnings and earnings management in an IPO setting.*Journal of Accounting and Public Policy*, 30(5), 431–459.

Aerts, W. & Tarca, A. (2010). Financial performance explanations and institutional setting.*Accounting and Business Research,* 40(5), 421–450.

Albu, C. N., Albu, N. & Alexander, D. (2014). When global accounting standards meet the local context-Insights from an emerging economy. *Critical Perspectives on Accounting*, 25(6), 489–510.

Albu, C. N. & Gîrbină, M. M. (2015). Compliance with corporate governance codes in emerging economies. How do Romanian listed companies "comply-or-explain"?. *Corporate Governance International Journal of Business in Society*, 15(1), 85–107.

Albu, N. & Albu, C.N. (2012). International Financial Reporting Standards in an emerging economy: Lessons from Romania. *Australian Accounting Review,* 22(4), 341-352.

Albu, N., Albu, C. N., Bunea, Ş., Calu, A. D. & Gîrbină, M.M. (2011). A story about IAS/IFRS implementation in Romania. *Journal of Accounting in Emerging Economies*, 1(1), 76–100.

Albu, N., Lupu, I. & Sandu, R. (2014). Multinationals as vectors of corporate governance improvement in emerging economies in Eastern Europe: A case study. In S. Boubaker & D. K. Nguyen (Eds.). *Corporate Governance in Emerging Markets. CSR, Sustainability, Ethics & Governance*, Springer, Verlag Berlin Heidelberg, pg. 331–349.

Baginski, S. P., Hassell, J. M. & Hillison, W. A. (2000). Voluntary causal disclosures: Tendencies and capital market reaction. *Review of Quantitative Finance and Accounting*, 15(4), 371–389.

Berglöf, E. & Pajuste, A. (2005). What do firms disclose and why? Enforcing Corporate Governance and Transparency in Central and Eastern Europe. *Oxford Review Of Economic Policy*, 21(2), 178–197.

Brennan, N.M., Guillamon-Saorin, E. & Pierce, A. (2009). Impression management: Developing and illustrating a scheme of analysis for narrative disclosures – A methodological note. *Accounting, Auditing and Accountability Journal*, 22(5), 789–832.

Bursa (2016, July 25). DIICOT investighează de aproape un an şi jumătate OMV Petrom pentru evaziune fiscală[in Romanian]. *Bursa*. Retrieved from http://www.bursa.ro

Capital (2006, June 22). Petrom, vânzare la jumătate de preţ[in Romanian]. *Capital*. Retrieved from http://www.hotnews.ro

Cho, C. H. Michelon, G. & Patten, D. M. (2012). Impression management in sustainability reports: An empirical investigation of the use of graphs. *Accounting and the Public Interest*, 12, 16–37.

Clatworthy, M.A. & Jones, M.J. (2001). The effect of thematic structure on the variability of annual report readability. *Accounting, Auditing and Accountability Journal,* 14(3), 311–326.

Clatworthy, M.A. & Jones, M.J. (2003). Financial reporting of good news and bad news: Evidence from accounting narratives. *Accounting and Business Research*, 33(3), 171–185.

Clatworthy, M.A. & Jones, M.J. (2006). Differential patterns of textual characteristics and company performance in the chairman's statement. *Accounting, Auditing and Accountability Journal*, 19(4), 493–511.

Craig, R. & Amernic, J. (2004). The deployment of accounting-related rhetoric in the prelude to a privatization. *Accounting, Auditing & Accountability Journal*, 17(1), 41–58.

Craig, R. & Amernic, J. (2006). The mobilization of accounting in preening for privatization. *Accounting, Auditing & Accountability Journal*, 19(1), 82–95.

Craig, R. & Amernic, J. (2008). A privatization success story: Accounting and narrative expression over time. *Accounting, Auditing & Accountability Journal*, 21(8), 1085–1115.

Dubois, A. & Gadde, L.E (2002). Systematic combining: An abductive approach to case research. *Journal of business research*, 55(7), 553–560.

Dumitru, M., Albu, N., Dumitru, V. & Albu, C.N. (2014). Practices regarding the forms of communication with the consumers used by a multinational company at global and local level. *Amfiteatru Economic*, 16(35), 41–57.

Elsbach, K.D. & Sutton, R.I. (1992). Acquiring organizational legitimacy through illegitimate actions: A marriage of institutional and impression management theories. *Academy of management Journal,* 35(4), 699–738.

European Commission (2016). Antitrust: Commission confirms unannounced inspections in the natural gas sector. Retrieved from http://europa.eu/rapid/press-release_STATEMENT-16-2133_en.htm

Evans, L. & Pierpoint, J. (2015). Framing the Magdalen: Sentimental narratives and impression management in charity annual reporting. *Accounting and Business Research*, 45(6–7), 661–690.

García Osma, B. & Guillamón-Saorín, E. (2011). Corporate governance and impression management in annual results press releases. *Accounting, Organizations and Society*, 36(4), 187–208.

Guillamón-Saorín, E., García Osma, B. & Jones, M.J. (2012). Opportunistic disclosure in press release headlines. *Accounting and Business Research*, 42(2), 143–168.

Henry, E. (2008).Are investors influenced by how earnings press releases are written?. *Journal of Business Communication*, 45(4), 363–407.

Hooghiemstra, R. (2003). The Construction of Reality: Cultural differences in self-serving behaviour in accounting narratives. Rotterdam: ERIM Ph.D. Series Research in Management.

Hooghiemstra, R. (2008). East-West differences in attributions for company performance: A content analysis of Japanese and US corporate annual reports. *Journal of Cross-Cultural Psychology*, 39(5), 618–629.

Ionașcu, I., Ionașcu, M. & Munteanu, L. (2011). Determinants and consequences of IFRS adoption: Perspectives on the Romanian institutional factors. *Audit Financiar*, 12, 33–41.

Krippendorff, K. (2004). Content analysis. An introduction to its methodology,Sage, 2nd ed, Thousand Oaks.

Lee, F., Peterson, C. & Tiedens, L.Z. (2004). Mea culpa: Predicting stock prices from organizational attributions. *Personality and Social Psychology Bulletin*, 30(12), 1636–1649.

Lupu, I. & Sandu, R. (2017). Intertextuality in corporate narratives: A discursive analysis of a contested privatization. *Accounting Auditing & Accountability Journal,* 30(3), 534–564.

Merkl-Davies, D.M. & Brennan, N.M. (2007). Discretionary disclosure strategies in corporate narratives: Incremental information or impression management?. *Journal of Accounting Literature*, 26(1), 116–194.

OMV Petrom (2008). Annual Report 2008. Retrieved fromhttp://www.omvpetrom.com

OMV Petrom (2010). Annual Report 2010. Retrieved fromhttp://www.omvpetrom.com

OMV Petrom (2011). Annual Report 2011. Retrieved fromhttp://www.omvpetrom.com

Price, S. M., Doran, J. S., Peterson, D. R. & Bliss, B. A. (2012). Earnings conference calls and stock returns: The incremental informativeness of textual tone. *Journal of Banking & Finance,* 36, 992–1011.

Rutherford, B. A. (2005). Genre analysis of corporate annual report narratives: A corpus linguistics-based approach. *Journal of Business Communication*, 42(4), 349–378.

Sutton, R. I. & Callahan, A. L. (1987). The stigma of bankruptcy: Spoiled organizational image and its management. *The Academy of Management Journal*, 30(3), 405–436.

Tarca, A., Street, D.L. & Aerts, W. (2011). Factors affecting MD&A disclosures by SEC registrants: Views of practitioners.*Journal of international accounting, auditing and taxation*, 20(1), 45–59.

Welch, C., Piekkari, R., Plakoyiannaki, E. & Paavilainen-Mäntymäki, E. (2011). Theorising from case studies: Towards a pluralist future for international business research. *Journal of International Business Studies*, 42(5), 740–762.

Yekini, L. S., Wisniewski, T. P. & Millo, Y. (2016). Market reaction to the positiveness of annual report narratives. *The British Accounting Review,* 48, 415–30.

Yuthas, K., Rogers, R. & Dillard, J. F. (2002). Communicative action and corporate annual reports. *Journal of Business Ethics,*41(1), 141–157.

Industrial Organization

POSSIBILITIES TO CONTROL VOLUME OF PRODUCTION IN CVP ANALYSIS: AN EXAMPLE OF COMPANIES PROVIDING TAXI SERVICES

Kinga BAUER
Cracow University of Economics, Poland
kinga.bauer@uek.krakow.pl

Marek BAUER
Cracow University of Technology, Poland
mbauer@pk.edu.pl

Abstract
The cost-volume-profit analysis is not a new concept, but scientific research indicates its continuous development in connection with changes in the surrounding environment. Its use is to aid entity managers in making business decisions in various types of enterprises. The critical volume values are a particularly important parameter of this analysis. The possibility of using CVP analysis in enterprises providing services is emphasized by empirical research. Adjusting the perspective to a given industry is recommended. In the case of companies providing taxi services, due to the nature of the market on which they operate, the analysis should go beyond the enterprise and use the results of research on transportation behavior, as well as simulation methods. In this paper, the results of a survey conducted among taxi drivers and among passengers using Kraków Airport are presented. On this basis, the average number and structure of the trip performed during the day by an average driver of a taxi corporation as well as the profile of his clients were determined. The maximum prices of taxi services for trips related to Kraków Airport, declared by its users, were also estimated. A proprietary simulation model supporting CVP analysis, through the possibility of generating any scenario of volume changes and the price of taxi services is presented in this paper. The use of the model was exhibited on one of the taxi corporations.

Keywords: *CVP, cost of transportation, volumen of services, airport, taxi*

1. INTRODUCTION

Operating in an economy that strives to increase the efficiency of activities causes the role of information that supports the control of every area of an organization's management to become of greater importance. The growing complexity of economic processes and the resulting uncertainty cause that apart from the analysis of historical data, decision-making accounts run in *ex ante* mode are becoming particularly important. One of the useful methods used to make decisions is the *cost-volume-profit (*CVP) analysis. Its essence being the combining into one account, many important economic categories, such as price, unitary variable cost, fixed cost and extend of activities.

The CVP analysis defines the critical size of parameters which describe the economic aspects of a given business. A particularly significant parameter is the critical volume size, calculated based on the assumption of a planned profit or the intended return on invested capital (Dobija, 1999, p. 164). Determining the size of potential revenue is a more difficult part of the analysis, while costs are relatively easy to calculate (Boockholdt, 1993, p. 555).

CVP analysis is not a new concept, but its principles evolve to meet the current needs of enterprises. The use of accounts in the decision-making process conducive to the increase in the efficiency of operations of individual enterprises may favour the economic development on a macroeconomic scale.

Additionally, economic development is also an important factor that has an effect on the increase of flow of goods and people, and thus burdening the road infrastructure (Kulińska, Odlanicka-Poczobutt, 2016, p. 255). The progress of civilization makes issues related to the functioning and development of transport an area of interest for scientists and practitioners.

Research focuses largely on the impact of transport on environmental pollution (Canals & Amante, 2013; Veloso, Phithakkitnukoon & Bento, 2013), noise generation, or the possibility of improving transport processes that will reduce time or improve travel conditions (e.g. Bauer, 2014). There are also studies regarding the measurement of *cost-benefit*. However, due to the role of transport in the functioning of societies, these analyses mainly concern the impact of changes in transport infrastructure on the costs incurred and the benefits gained by transport system users (Jacyna, Żak & Gołębiowski, 2014).

It should also be noted that among companies providing transport services there are entities whose operations are profit oriented. These are private carriers, whose operations should be carried out in an effective manner, taking into account factors that make the transport process efficient, such as the requirements of the party undertaking the contract (in this case it is a traveler). Among other customer requirements, such as travel time, speed and punctuality of transport (Guiraoa, García-Pastorb & López-Lambasa, 2016; Bryniarska, 2018), the costs of transport services are important (Odlanicka-Poczobutt, Kulińska, 2015, p. 809). The measurements of economic parameters such as costs, the number of services provided, or the price that can be obtained for the provided transport service can be used in the CVP analysis of taxi companies.

The decision-making process in enterprises providing transport services, due to the complexity of the issue and the impact of various factors on the company's performance, requires a holistic approach. The methods of management accounting should be extended to research on transportation behaviour and statistical analysis. The use of an enterprise providing transport services indicated in the research for the purpose of CVP analysis is necessary in order to learn the nature of the analyzed phenomena. The role of research on transportation behaviour is emphasized by Kulpa & Szarata (2016) and Kraft (2014), among others publications. In addition, L. Heitger, P. Ogan and S. Matulich (1992, p. 921) indicate that, an important element of managerial analysis – among which is the CVP analysis – is the use of statistical methods, including quantitative techniques. Although statistical techniques are not always comprehensive, in many cases they will be extremely helpful in the decision-making process.

In the context of the above considerations, the purpose of this paper is to analyze the possibilities of using the CVP analysis, the study of transportation behaviors and statistical methods in order to obtain information on the optimal extent of services provided. Taxis associated in Kraków Airport Taxi have been used for the case study, an official carrier authorized to provide transport services for customers of John Paul II International Airport Kraków-Balice. Due to the nature of agreements binding entities selected for research with a superior one, this work is of a conceptual nature. The companies providing the analyzed services are not able to determine the fares of the offered services on their own, and the amount depends on the decision of the Airport Taxi company which created the particular taxi drivers association. This paper is intended to show the possibilities of management accounting tools in supporting the decision-making process of enterprises providing services, along with the use of additional research. However, the indicated calculation methods may be applied in other enterprises providing homogeneous, standardized services. However, it is always a necessary to take into account the specificity of a given type of company or group of enterprises**.**

2. THE ESSENCE OF *COST-VOLUME-PROFIT* ANALYSIS AND THE POSSIBILITIES OF ITS APPLICATION AMONG SERVICE PROVIDERS

The cost-volume-profit analysis (CVP) has a relatively long history of use. The beginnings of applying the break even concept date back to the 19th century. Despite the development of management accounting methods and tools, CVP analysis and profitability calculations remain valid, useful and are being used in business management. From the beginning of it creation, CVP analysis has been modified and improved to reduce its limitations and to develop possibilities of its application in as many business situations as possible. As a result, CVP analysis became even more

useful over the years. Initially, it was created as a mathematical formula to calculate simple relationships between costs, price, production volume and profits in a company that produces and sells only one good. This limitation has caused criticism of this calculation method. However, in practice, CVP analysis can be used in many different business situations (Cafferky, 2010, pp. 1–3).

In the basic mathematical formula for the purpose of break-even point, total costs for a period equal total revenue for a period. The total costs are the sum of fixed costs and variable costs. Total revenue is calculated as the product of the unit selling price and quantity sold. The expended formula includes multi-assortment production or investment settlement (see, among others, Drury, 1992; Garrison & Noreen, 1994; Dobija, 1999; Piosik, 2006).

The mathematical formula is:

$$NP = xp - xv - TF \tag{1}$$

Where:
NP – net profit;
x – unit sold (volume);
p – selling price;
v – unit variable cost;
TF – total fixed costs.

In the analysis it is assumed that, connections that exist between particular categories are linear in nature. In addition, it is assumed that both total fixed costs and variable costs per unit remain steady in a given range. Assumptions for the sales volume are also generated. It is necessary to determine the critical quantities concerning the sales volume, i.e. to determine the maximum production capacities. Due to the fact that, in practice, these values are variable over time, the analysis is covers a short period of time (Drury, 1992). One of the main questions in the analysis is what the minimum level of sales that allows covering all costs is.

Controlling the level of sales in the CVP analysis allows determining parameters that will indicate financial threat, monetary balance or financial surplus. With its use, it is possible to determine at what sales volumes the continuation of the company's operations will be threatened, and at what levels the entity will have a chance for development (Jaruga, Kabalski, Szychta, 2010, pp. 348–356).

Undoubtedly, an important element of the CVP analysis is the cost analysis which affects the company's results. However, the possibilities of controlling the level of variable costs in the short term are very limited and controlling the level of fixed costs is practically impossible.[1] Due to the topic of this paper, the cost side will not be analysed.

Publications on the subject of CVP analysis refer mainly to production companies as examples. However, the use of CVP is not only possible, but also recommended in enterprises providing services. Striving to increase the efficiency of service providers is all the more important nowadays. This is due to the fact that, today the growth of the services sector determines the economic growth in most countries of the world; the evidence for this being the growing share of services in GDP creation, incorporation of employees, investment expenditures, consumption, and international trade. The services sector creates the majority of GDP and employs over half of all working people (Czubała, 2001, pp. 35–36). The calculations will be used to measure parameters of service providers that will help them not only not to bring losses, but to be a competitive business. Competitiveness is associated with savings in expenditure and time, i.e. achieving set goals with the smallest expenditure of economic resources and in less time than other market participants (Dobija, 2013, p. 54). Due to the fact that the formulas used in the CVP analysis contain the indicated parameters related to economic expenditures, this analysis can be considered a supporting measure aimed at increasing the competitiveness of enterprises.

[1] In the case of companies providing taxi services, the main variable cost will be the cost of fuel. Its price is varies slightly between different petrol stations, and the user's influence on short-term consumption is also practically impossible. Reducing consumption would require investment in a new car or better installations (eg. LPG).

In the case of service providers, analyses in the decision-making processes may be more difficult than among production companies. M. Cafferky (2010, p. 16) points out that the typical cost structure in a service providing entity is the high level of fixed costs and the low level of variable costs. At the same time, the sale of services is associated with high volatility over time. As a result, providing services is risky due to the uncertainty of being able to cover fixed costs.

The possibility of using CVP analysis in enterprises providing services is confirmed by scientific studies which highlight an industry approach to costs, volume and prices. For example, C. Greenberg (1986, pp. 9–11) used the CVP analysis to measure changes in gastronomic enterprise. His research covered operating statements of two different types of restaurants (typical full-menu table-service restaurant and fast food restaurant), which differed in parameters such as facilities, fixed and variable costs, and sales volume. He stated that the CVP analysis measuring the effects of changes in parameters such as costs or sales volume contributes to the transformation of an operating statement into a useful tool for making business decisions. His research indicates the usefulness of CVP analysis in service enterprises, regardless of their size. Noteworthy is the fact that, enterprises used in the research sold various meals, which is an additional difficulty in the CVP analysis.

Restaurants as an example for the application of CVP analysis were also used by M. Cafferky (2010, pp. 21–28). CVP analysis in services company was also discussed in the case of other companies providing services. R. Anderson, R. Fok and J. Scott (2000, pp. 40–48), whilst analyzing the hotel industry, pointed out that CVP analysis is useful in enterprises providing services because it studies how sales volumes translate into profits. O. N. Basu and E. J. Conrad (1994), demonstrate in their research the usefulness of the CVP model and its related complexities to the banking sector. They pointed out that although the traditional CVP analysis was developed for manufacturing enterprises, the concept itself applies to services enterprises such as banking, insurance and other financial services industries.

The aforementioned scientific publications which refer to the CVP method in enterprises providing services focus on the industry approach to the analyzed topic. This approach indicates that the study of the specifics of a given type of enterprise should be considered a priority in the decision-making process.

3. THE INFLUENCE OF CHARACTERISTICS OF COMPANIES PROVIDING TAXI SERVICES ON PARAMETERS USED FOR ECONOMIC ANALYSIS

Despite continuous improvement in the quality of public transport in cities, there is still a strong need for the development of individual transport, including car transport. However, the global approach to using the car in the city is changing, it aims to reduce the number of trips made by car, as well as to reduce the number of vehicles owned by residents; therefore city car sharing systems are developing dynamically (Csonka & Csiszár, 2016), private transport is becoming more and more important, e.g. Uber (Cramer & Krueger, 2016). It is impossible not to notice the increase in the importance of the most traditional form of generally available, but also individual public transport to order, which is the taxi. According to the report of the Polish Taxi Network in 2014, in Poland, on an average day 420,000 people already used taxis; 100,000 more than 10 years earlier.

Taxi clients are representatives of various environments and social groups. The use of taxis allows one to move around numerous parts of the city and to perform other services via them (see, among others, Cooper, Mundy, 2016). The development of new forms of taxi and quasi-taxi transport (e.g. taxicabs, limousines and ride sharing vehicles) is aimed at modernizing communicative technology, including the widespread use of applications for smart phones and GPS (Anderson, 2014). Some of the developing forms of transport, such as Uber, create ambivalent feelings, and their functioning is even analyzed in terms of social costs associated with their development (Rogers, 2015).

The nature of the services provided affects research on the economic parameters of taxi companies. According to H. Yang, K. I. Wong and S. C. Wong (2001), research into the economic aspects of services offered by taxi companies often refers to various types of regulations related to this economic activity. However, it is also advisable to create taxi service models as part of a city's transport network. Another important matter is analyses regarding changes in drivers' business behaviour influenced by potential passengers. This issue can be considered by looking at the number of services offered in specific parts of the city.

The demand and supply of the number of taxi services are associated with economic parameters such as the price of the service or the cost of its provision. When analyzing the case of the New York Taxi Industry and its fare policy B. Schaller (1998, p. 189) stated that "setting taxi fares is one of the most delicate and difficult tasks faced by taxi regulators". In his opinion, determining the appropriate fare requires precise determination of costs related to the service provided. The problem is even greater because it is related to the quality of services which benefits from the increase in fares. In addition, in his opinion, issues related to accessibility should be an integral part of the pricing policy.

Increasing the prices of taxi services will affect the availability of these services, i.e. increasing the volume. The problem of finding a balance between supply and demand of taxi services was also noticed by H. Yang, S. C. Wong and K. I. Wong (2002). Their research concerns the regulated taxi services market in Hong Kong. The model developed by them is aimed at determining the balance between demand and supply of taxi services both on the monopolistic and competitive market. The authors referred not only to the issue of determining the optimal fare, but also maintaining the quality of services. The conducted analysis, due to the nature of the industry, differs from the classical economic analysis. It takes into account the spatial structure of the market such as the form of road network and the customer origin–destination demand pattern and the influence regulations have on the efficiency of the whole system.

Pricing of taxi services has special characteristics. H. Yang, C. S. Fung, K. I. Wong and S. C. Wong (2010) pointed out the non-linearity of taxi service prices per unit of time. They defined the expected profit as a profit per unit of time. They pointed out that, predictions as to the place of increased demand for services, i.e. the greater possibility of picking up a passenger at a specific location, influences the taxi driver's choice of location. These decisions affect the calculation of profits. The authors of the analysis, when describing the nature of taxi companies, included in the calculations of the expected profit not only the time spent on getting the client to his destination, but also the time it took to get to him and the time of being idle. They also paid attention to promotional travel rates on longer routes. Their research indicates that the volume for taxi services cannot be converted in a simple way per 1 km, because the average price per kilometre of the trip will vary depending on the length of the trip.

Some of the scientific research concerns central regulations or introduced deregulation on the market of taxi services, as well as the development of models from the point of view of the market organization, the operational organization and regulation issues (compare to Foerster & Gilbert, 1979; Morrison, 1997; Litman, 2005 Moore & Balaker, 2006, Salanova, Estrada, Aifadopoulou & Mitsakis, 2011). C. Seibert (2006) drew attention to the benefits coming from the deregulation of taxi markets. In his opinion, problems related to imperfect information and coordination can be eliminated by using a centralized intermediary on an unregulated taxi market. This solution will maximize the benefits of competition.

The cited research results indicate the complexity of the discussed issue and the need to look at economic analyses of taxi companies in connection with the situation on the market where they operate. It is also advisable to simultaneously analyze the research on communication behaviours that had an effect on the reported demand and the offered supply, and thus the economic parameters for the CVP analysis.

4. VOLUME IN DECISION-MAKING PROCESS: COMBINING THE CVP ANALYSIS WITH RESEARCH ON COMMUNICATION BEHAVIORS

4.1 The nature of the analyzed entity

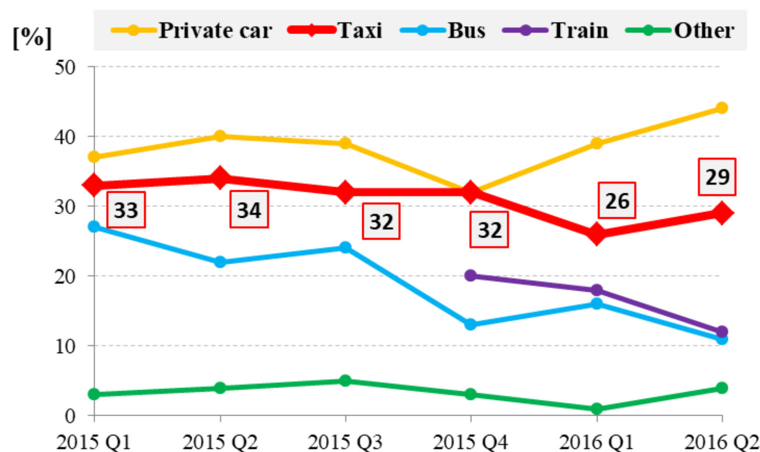
In this paper, an analysis of taxi services carried out by a company offering transport to passengers arriving and departing from Kraków Airport has been presented. Kraków Airport itself is located at a relatively short (by world standards) distance from the very center of Kraków; in a straight line it is 11 km from the Market Square (Figure 1). There are several ways to get from the airport to the center of Kraków, including the two most popular and generally the fastest routes – 13.5 km and 17.4 km counting to the Main Railway Station. For comparison, the railway line joining these two points is 12 km long.

Figure 1. The main routes connecting Kraków Airport with the Main Railway Station

Source: own study

According to regular surveys conducted by Kraków Airport (as part of the Airport Service Quality surveys), a similar number of passengers travel to the airport by their own car, mass transport (including rail and bus) and taxis (Figure 2).

Figure 2. Choice of means of transport – Kraków Airport 2015–2016



Source: Airport Service Quality surveys

The amount of taxi services remains fairly stable, despite the possibility to use the Fast Agglomeration Railway line since the fourth quarter of 2015. They invariably oscillate around 30%. Some of the services are carried out by the Kraków Airport Taxi company, which has business connections with the airport business and offers transport at a higher standard, thus matching the standards of air travel. Travelers may also take taxis from other corporations, however, only Kraków Airport Taxi taxis may use designated parking spaces without additional charges; other corporations may stay in the port area free of charge for a maximum of 10 minutes. A characteristic

feature of the Kraków Airport Taxi corporation is the price list, which does not change with the duration of the journey, the time and day of the week (Table 1).

Table 1. Kraków Airport Taxi charges

Zone	Distance from Kraków Airport [km]	Single fare [EUR]
1	< 5.0	7.00
2	5.0–9.9	12.00
3	10.0–14.9	17.00
4	15.0–19.9	22.00
5	20.0–24.9	27.00
6	25.0–29.9	32.00

Source: http://www.krakowairport.pl

Fares for distances over 29.9 km are settled with the driver prior to the ride. Therefore, traveling to the same place may involve different travel prices, depending on the route. However, traveling on a longer route can be profitable, as taxi travel times change on individual routes, depending on the current traffic conditions. The journey time by car (also taxi) varies within 18–46 minutes, excluding special cases; the expected average travel time is 30 minutes. As comparison, journey by the Fast Agglomeration Railway train takes 18 minutes.

4.2 The course of research

Research on transportation behaviours was carried out on the 14–15 December, 2016, at Kraków Airport, with the consent of the airport manager, MPL Kraków-Balice. The research consisted of three main parts: questionnaire surveys conducted on a random group of passengers departing and arriving, questionnaire surveys among taxi drivers and measurements of passenger flows in mass transport between the airport and the centre of Kraków. All research and measurements were conducted by trained interviewers who are members of the Student Scientific Association of Transportation Systems of Cracow University of Technology and the Student Scientific Association of Accounting of the Cracow University of Economics. The project's scientific supervisors were the authors of this paper.

Research among Kraków Airport Taxi drivers was carried out at a taxi waiting area at the airport grounds and concerned the structure of transport services provided (to the airport and from the airport) and the number of paid courses performed during the average working day. In this case, the respondents spoke not about the specific day of research, but the average working day. The survey covered the majority of the corporation’s drivers working on those days, i.e. 68 drivers.

Passengers were asked questions in the public part of the passenger terminal, both in the arrivals and departures areas. The questions included issues concerning the origin and purpose of travel and means of transport chosen (passenger car, car sharing, taxi, Uber, Fast Agglomeration Rail, bus), passengers also indicated the motivation which guided them during the selection of a specific means of transport, and - what is particularly important from the point of view of this paper’s subject - the maximum price they can pay for a taxi to the airport. Interviews were conducted in Polish and English. The obtained results made it possible to obtain reliable information on decisions taken by passengers in real-life conditions.

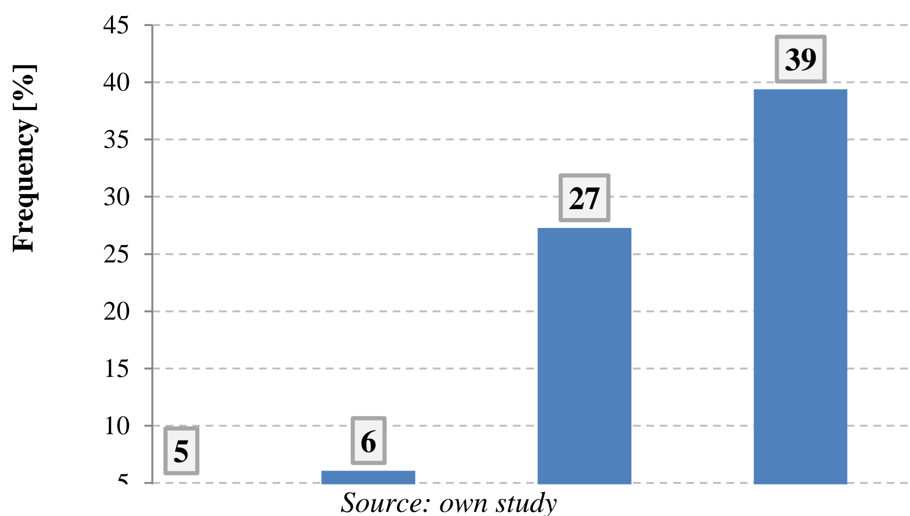
In total, information was obtained from 571 passengers (307 departing and 264 arriving), including 186 foreigners (33% of all respondents). The respondents were selected in a completely random manner. The amount of them enables a reliable estimation of the preferences of all individuals using the Kraków airport – for example: the error of estimating the share of travellers using taxis to get to the airport does not exceed 3.5%.

4.3 Results of empirical research

From the point of view of the purpose of this paper, the most important question presented to the taxi drivers of the Kraków Airport Taxi corporation was the number of paid trips carried out on an average working day. Responses were within 3–8 trips per day, but the vast majority of drivers declared that they had between 5 and 7 trips (Figure 3). The average driver performs 5.8 paid trips a day with a relatively low coefficient of variation, equal to 20.1% (standard deviation of the number of trips is 1.2 trips per day).

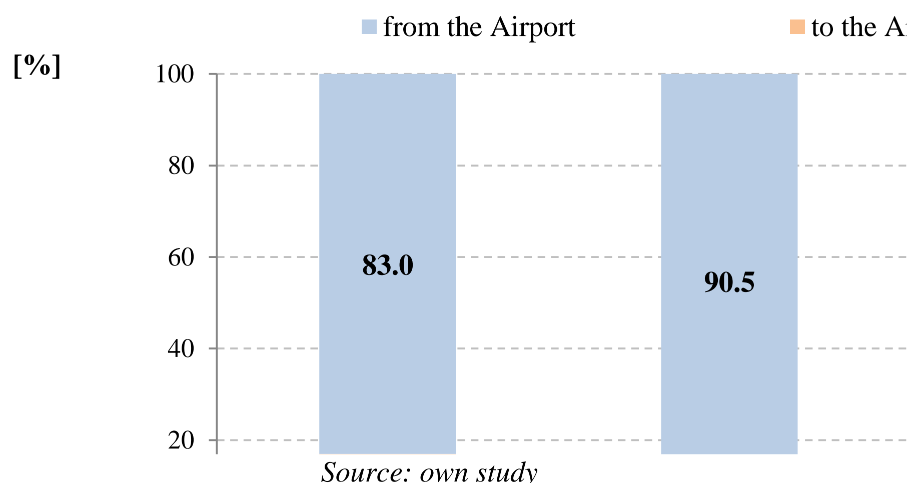
The directional structure is strongly associated with the number of trips. According to the taxi drivers of the Kraków Airport Taxi corporation, the percentage of paid trips from the airport is much higher than those carried out to the airport. On average, the former makes up 87.7%. However, the structure varies depending on the number of trips that can be completed during the day, as shown in Figure 4.

Figure 3. Number of taxi paid trips per day



Source: own study

Figure 4. The directional structure of taxi paid trips



Source: own study

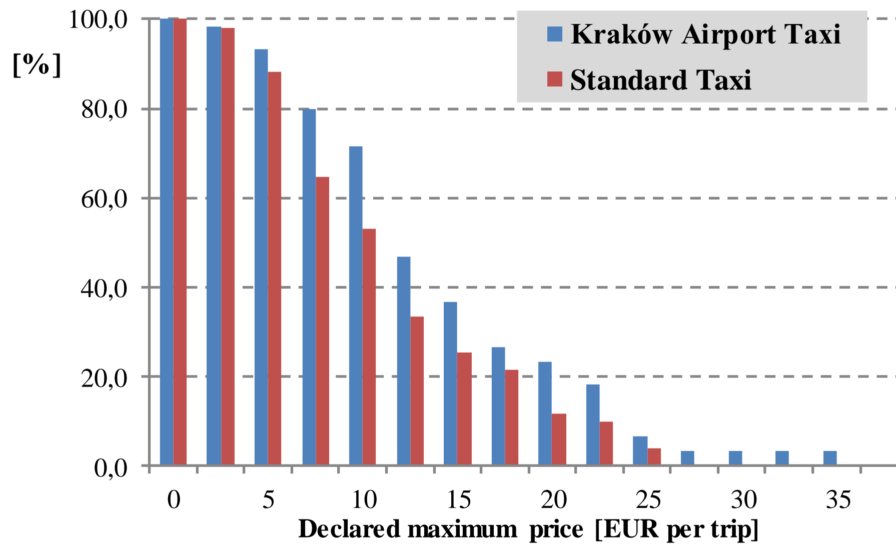
The obtained results point out that the transport capacity is not fully utilized, because a significant number of trips are carried out without passengers.

Taxi drivers were also asked about the percentage of Poles and foreigners using their services. As many as 77.5% of clients are foreigners, however, it should be noted that the services

provided by Kraków Airport Taxi are premium services and are therefore more often chosen by wealthier passengers.

In turn, airport customers were asked about the maximum, yet acceptable transport fare – to standardize the survey – one of the most frequently chosen routes was taken into account: from Kraków Airport to The Main Railway Station. Figure 5 presents the distribution of threshold values declared by the surveyed passengers for taxi premium services (which includes the Kraków Airport Taxi corporation) and taxi standard services.

Figure 5. Distribution of the declared price thresholds at which passengers are still willing to choose a taxi when travelling to the airport



Source: own study

The average declared price for premium services is 15.25 EUR for one trip, while for standard taxi services – 12.75 EUR per trip. It should be added that the price (also declared) of arrival to the airport by taxi by a group of people who chose it as a means of transport to the airport – was on average 14.70 EUR, so it was within the maximum declared limits for standard and premium services.

5. AN ANALYSIS OF THE INFLUENCE OF CHANGES IN NUMBER OF TRIPS AND TRANSPORT PRICES ON REVENUE FROM THE SALE OF TAXI SERVICES

5.1 Simulation model

On the basis of the obtained information from the survey, an attempt was made to create a simulation the model, which is used to estimate the sales revenue of taxi services depending on the service volume. The model presented is of universal nature, it can be used to estimate volume for any connections between airports and cities, provided credibly estimated service parameters are used, often with a strong local dependence. Therefore, the description of the model itself is also universal. The working time of a single taxi during the average day (expressed in minutes) is determined by the following formula:

$$T = T^1 + T^2 = \sum_x \alpha_x^1 \cdot t_x^{t1} + \sum_x \beta_x^1 \cdot t_x^{r1} + \sum_x \alpha_x^2 \cdot t_x^{t2} + \sum_x \beta_x^2 \cdot t_x^{r2} \quad (2)$$

Where:

$x = 1, 3, 5, \dots$ - consecutive odd trips, from the airport to the city;

$x = 2, 4, 6, \dots$ - consecutive even trips, from the city to the airport.

This time has been defined as the sum of times of acquiring passengers in two directions (from the airport and to the airport) t_x^{t1} and t_x^{t2} and travel times in both directions t_x^{r1} and t_x^{r2}. Coefficients expressing the probabilities of taking the trouble of gaining passengers and / or waiting for passengers α_x^1 *and* α_x^2 and the probability of performing a paid trip β_x^1 *and* β_x^2 - thanks to which it will be possible to take into account the real working conditions of taxis.

Coefficients α_x^1 *and* α_x^2 are pseudo-random numbers with Zero-one distribution:

$$\alpha_x^{1,2} = random[Z(p_w)] \qquad (3)$$

Where:
p_w – probability of searching and / or waiting for a passenger.
The drawn numbers only adopt two types of values {0, 1}, depending on whether the driver attempts to obtain a passenger $\alpha_x^{1,2} = 1$ (e.g. as the result of the dispatcher providing a passenger), or whether the driver immediately decides to make a return trip $\alpha_x^{1,2} = 0$ (there is a passenger right away or the drivers decides to make a return trip without a passenger).

While coefficients β_x^1 *i* β_x^2 are pseudo-random numbers with Binomial distribution:

$$\beta_x^{1,2} = random[B(n_c, p_s)] \qquad (4)$$

Where:
n_c –average number of all trips in a day;
p_s – probability of a paid trip.

In practice, β_x^1 *i* β_x^2 also take on values equal to 1 (paid trip) or equal to 0 (trip without a passenger). The number of trips performed is limited by the drivers' working hours *D* (here expressed in minutes), which is a boundary condition that in not exceedable. Subsequent trips can only be taken if $T \le D - t_i^{r1}$ or $T \le D - t_i^{r2}$, depending on where the previous trip ended.

Lengths of particular processes (searching for passengers, trips) should be estimated based on the results of measurements under real conditions - taxi companies generally have such data, however, this is not often data available to just anyone.

The number of completed trips translates into the volume of taxi services sold, which can be determined by the following formula:

$$p = p^1 + p^2 = \sum_x p_x^1 + \sum_x p_x^2 \qquad (5)$$

Where:
p_x^1 and p_x^2 - revenues earned during consecutive trips, in both directions.

The presented model has an open structure, it can be improved by adding further elements, such as: diversification of travel time depending on the time of day and direction of travel, taking into account the structure of arrivals and departures, or introduction of dispatcher control system for taxis.

5.2 Computational scenarios

The model was used to simulate taxi traffic of the Kraków Airport Taxi corporation. This analysis takes into account the average values of individual taxi traffic processes duration times:

- the average waiting time for a passenger (also in queue of taxis) at the airport is 20 minutes, and if it is possible to immediately depart with the passenger – 2 minutes;

- The average time of searching for a passenger or waiting for a passenger in the center of Kraków (if it takes place) is 10 minutes. In the case of a quick decision to return to the airport without a passenger – 2 minutes;
- The average journey time with the passenger is 37 minutes (including operational activities, e.g. loading of luggage, payment for the trip, etc.), while without a passenger 31 minutes.

The following additional assumptions have been adopted:
- the taxi drivers travel on the route Kraków Airport – Main Railway Station;
- the first trip of the day is from the airport to the city centre
- driver's working time is 8 hours, or 480 minutes, when it is not possible to take another trip without exceeding this value – the trip is not taken;
- changes in mass transport ticket prices and parking prices were not taken into account

Three calculation scenarios were considered:
- Scenario S0 - corresponding to the current state, in which the transport price is on average EUR 14.70 EUR per trip;
- Scenario S1 – in which the price will be 12.50 EUR / trip; the expected increase in the number of people choosing Kraków Airport Taxi when arriving at the airport being 10%, which is consistent with the distribution of maximum prices for premium-class transport, as stated by the surveyed travelers (Fig. 6);
- Scenario S2 – in which the price is 20.00 EUR / trip; expected decrease in the number of customers by 15%, which is also in line with the declarations of the surveyed travelers.

Table 2 presents the probability of searching for passengers and completing a paid trip under particular options.

Table 2. Probabilities

Scenario	Direction: Kraków Airport – Main Railway Station		Direction: Main Railway Station – Kraków Airport	
	p_w	p_s	p_w	p_s
S0	0.900	0.990	0.050	0.029
S1	0.900	0.999	0.050	0.080
S2	0.900	0.910	0.050	0.009

Source: own study

For each calculation scenario, 20 daily simulations were performed, using the proprietary calculation algorithm built in Excel, and also pseudo-random number generators from Mathematica 6.0 mathematical package were used.

5.3 Simulation results

The results of simulation calculations are presented in Table 3. It should be noted that, the results obtained for scenario S0 are close to those obtained from the surveys. Thus, it can be stated the model reflects the present state well.

Table 3. The simulation results

Scenario	Average number of paid trips per day	Percent of courses from Airport	Percent of courses to Airport	Selling price [EUR/paid trip]	Revenues [EUR per one taxi per day]
S0	5.8	84	16	14.70	85.3
S1	6.7	75	25	12.50	83.8
S2	4.7	95	5	20.00	94.0

Source: own study

The results of simulation calculations indicate that even if the price for a trip is increased, the revenues will increase during the day. This despite the fact that there will be one paid trip less and that only 23% of respondents declare interest in using the service at such a price. This is partly due to the fact that the majority of Kraków Airport Taxi clients are foreigners who are willing to pay more. The analysis also shows that it would not be beneficial for the corporation to reduce the price of the service - in spite of statistically carrying out one additional trip per day, revenues would decrease compared to the current state. However, further research is necessary that would take into account changes in prices of other means of transport available to get to the Kraków Airport.

6. CONCLUSIONS

Changes in the applied methods and tools of managerial accounting are related to the evolution of technology which allows more and more advanced calculations. Support for the development of analyses used in managerial accounting, including CVP analysis may be the development of multidisciplinary simulation methods.

As it results from empirical studies, the use of market research and simulation methods favors the calculation of the optimal sales volume of services.

Based on the results of empirical research, a simulation model was built to estimate the number of paid and unpaid trips and the financial effects of taking them. The model maps the processes of taxi traffic, during daily performance of transport services, including waiting times for passengers and travel times, and the likelihood of traveling with and without a passenger – as per current prices for transport services.

The CVP analysis, however, has a limitation inherent in its assumptions. Attention should be drawn to the phenomenon of uncertainty regarding input data and their constancy in a given period. Actual data may in practice differ from the planned data. In the analyzed operations, particularly high uncertainty is associated with changes in communication behavior. The demand for taxi services is variable over time and largely depends on other factors, such as the development of other transport possibilities, with particular emphasis on much cheaper than taxis and increasingly comfortable public transport. The subject of changing transport possibilities, although it is a communication planning issue, will influence the results of analyses used in the decision-making accounting of private carriers. The presented proprietary simulation model enables the study of the impact of various changes in the volume and the price of taxi services, including the duration of traffic processes, travel time and the directional structure of transport.

In this paper, the focus was on one of the parameters of the cost-volume-profit analysis. In the future, research will include price decisions in order to create a comprehensive picture of the potential of combining CVP analysis with in-depth research into the specifics of the analyzed business entities, in this case transportation companies. The simulation model itself will also be expanded to increase its utility in practice.

BIBLIOGRAPHY

Anderson, D. N. (2014). “Not just a taxi”? For-profit ridesharing, driver strategies, and VMT. *Transportation*, *41*(5), 1099–1117.

Anderson, R. I., Fok, R., & Scott, J. (2000). Hotel industry efficiency: An advanced linear programming examination. *American Business Review*, *18*(1), 40–48.

Basu, O. N., & Conrad, E. J. (1994). Cost-volume-profit analysis: uses and complexities in a bank. *Journal of Performance Management*, *7*(2), 50–58.

Bauer, M. (2014). Application of the Bus Line Simulation Model in the Assessment of the Potential Effects of Bus Lane Separation. *Journal of Communication and Computer 11*, 74–87.

Boockholdt, J. L. (1993). *Accounting information systems. Transaction Processing and Controls,* Irwin, Boston.

Bryniarska, Z. (2018). Changes in the Level of Satisfaction and Passenger Preferences in Sustainable Public Transport. *Scientific And Technical Conference Transport Systems Theory And Practice TSTP 2018: Directions of Development of Transport Networks and Traffic Engineering*, 3–16.

Cafferky, M. (2010). *Breakeven Analysis: The definitive guide to cost-volume-profit analysis*. Business Expert Press.

Canals Casals, L., & Amante García, B. (2013). An electric taxi fleet charged by second use batteries: not just economic profit. *World Journal of Science, Technology and Sustainable Development*, *10*(3), 186–194.

Cooper, J., & Mundy, R. (2016). *Taxi! Urban economies and the social and transport impacts of the taxicab*. Routledge.

Cramer, J. & Krueger, A.B. (2016). Disruptive Change in the Taxi Business: The Case of Uber. *American Economic Review 106 (5)*, 177–182.

Csonka, B. & Csiszár, C. (2016). Service Quality Analysis and Assessment Method for European Carsharing Systems. *Periodica Polytechnica Transportation Engineering, 44 (2),* 80-88. DOI: 10.3311/PPtr.8559.

Czubała, A. (2015). Innowacje w sektorze usług w Polsce. *Zeszyty Naukowe Małopolskiej Wyższej Szkoły Ekonomicznej w Tarnowie*, *1*, 35–45.

Department of Transport. Transport Statistics Great Britain 2017, Modal Comparisons. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664323/tsgb-2017-print-ready-version.pdf, (1.08.2018).

Dobija, M. (1999). *Rachunkowość zarządcza i controlling,* Wydawnictwa Naukowe PWN, Warszawa.

Dobija, M. (2013). Fundamentalne zasady leżące u podstaw nauki rachunkowości. *Zeszyty Teoretyczne Rachunkowosci*, *70*(126), 43–61.

Drury, C. (1992). *Management and Cost Accounting,* Chapman & Hall, London.

Foerster, J. F., & Gilbert, G. (1979). Taxicab deregulation: economic consequences and regulatory choices. *Transportation*, *8*(4), 371–387.

Garrison, R. H., Noreen, E. W. (1994). *Managerial Accounting. Concepts for Planing, Control, Decision Making,* Irwin, United States of America.

Greenberg, C. (1986). Analyzing restaurant performance: Relating cost and volume to profit. *Cornell Hotel and Restaurant Administration Quarterly*, *27*(1), 9–11.

Guiraoa, A., García-Pastorb, A. and López-Lambasa, M.E. (2016). The importance of service quality attributes in public transportation: Narrowing the gap between scientific research and practitioners' needs. *Transport Policy 49*, 68–77. https://doi.org/10.1016/j.tranpol.2016.04.003

Heitger, L., Ogan, P. & Matulich, S. (1992). *Cost Accounting,* College Division South-Western Publishing Co., Cincinnati Ohio.

http://www.aci.aero/News/Releases/Most-Recent/2018/04/09/ACI-World-releases-preliminary-2017-world-airport-traffic-rankings--Passenger-traffic-Indian-and-Chinese-airports-major-contributors-to-growth---Air-cargo-Volumes-surge-at-major-hubs-as-trade-wars-threaten-

http://www.krakowairport.pl, (1.08.2018).

http://www.krakowairport.pl/pl/pasazer,c70/dojazd,c313/krakow-airport-taxi,a2435.html, (1.08.2018).

Hylén, B. How do passengers get to and from the airport? Bike or rail? http://fsr.eui.eu/wp-content/uploads/14030317-Hylen.pdf, (1.08.2018).

Jacyna-Gołda, I., Żak, J., Gołębiowski, P. (2014). Models of traffic flow distribution for various scenarios of the development of proecological transport system. *Archives of Transport 32(4)*, 17–28.

Jaruga, A. A., Kabalski, P., Szychta, A. (2010). *Rachunkowość zarządcza,* Oficyna Wolters Kluwer business, Warszawa.

Johnson, G. L., & Simik, S. S. (1974). The use of probability inequalities in multiproduct CVP analysis under uncertainty. *Journal of Accounting Research*, 67–79.

Kraft, S. (2014). Daily spatial mobility and transport behaviour in the Czech Republic: pilot study in the Písek and Bystrice and Pernštejnem regions. *Human Geographies--Journal of Studies & Research in Human Geography 8(2)*, 51–67. doi:10.5719/hgeo.2014.82.51.

Kulińska, E., & Odlanicka-Poczobutt, M. (2016). Facilitation of Urban Transport through a Pipeline Supply Network. *Transportation Research Procedia*, *16*, 255–265.

Kulpa, T. & Szarata A. (2016). Analysis of household survey sample size in trip modelling process. *Transportation Research Procedia 14*, 1753–1761. doi: 10.1016/j.trpro.2016.05.141.

Litman, T. (2005). London congestion pricing–implications for other cities. *CESifo DICE Report*, *3*(3), 17–21.

Mane, M., & Crossley, W. (2006, September). Preliminary cost feasibility study of air taxi operations. In *6th AIAA Aviation Technology, Integration and Operations Conference (ATIO)* (p. 7734).

Mane, M., & Crossley, W. A. (2009). Importance of aircraft type and operational factors for air taxi cost feasibility. *Journal of aircraft*, *46*(4), 1222–1230.

Moore, A. T., & Balaker, T. (2006). Do economists reach a conclusion on taxi deregulation? *Econ Journal Watch*, *3*(1), 109–132.

Morrison, P. S. (1997). Restructuring effects of deregulation: the case of the New Zealand taxi industry. *Environment and planning A*, *29*(5), 913–928.

Odlanicka-Poczobutt, M., Kulińska, E., (2015). Determinanty procesów planowania transportu wyrobów piwowarskich–studium przypadku. *Logistyka*, *6*, 808-817.

Piosik, A. (2006). *Zasady rachunkowości zarządczej,* Wydawnictwo Naukowe PWN, Warszawa.

Polska Sieć Taxi, http://www.polskasiectaxi.pl/, https://www.bankier.pl/wiadomosc/Polski-rynek-uslug-taksowkowych-w-liczbach-3192996.html, (1.08.2018).

Report of the Student Scientific Association of Transportation Systems of Cracow University of Technology and the Student Scientific Association of Accounting of the Cracow University of Economics (2017),*Funkcjonowanie transportu w obsłudze pasażerów portu lotniczego Kraków-Balice.*

Rogers, B. (2015). The social costs of Uber. *U. Chi. L. Rev. Dialogue*, vol. *82*, pg. 85–102.

Salanova, J. M., Estrada, M., Aifadopoulou, G., & Mitsakis, E. (2011). A review of the modeling of taxi services. *Procedia-Social and Behavioral Sciences*, *20*, 150–161.

Schaller, B. (1998). Issues in fare policy: Case of the New York taxi industry. *Transportation Research Record: Journal of the Transportation Research Board*, (1618), 139–142.

Seibert, C. (2006). Taxi deregulation and transaction costs. *Economic Affairs*, *26*(2), 71–73.

Veloso, M., Phithakkitnukoon, S., & Bento, C. (2013, September). Exploring relationship between taxi volume and flue gases' concentrations. In *Proceedings of the 2013 ACM conference on Pervasive and ubiquitous computing adjunct publication* (pp. 1229–1238). ACM.

Yang, H., Fung, C. S., Wong, K. I., & Wong, S. C. (2010). Nonlinear pricing of taxi services. *Transportation Research Part A: Policy and Practice*, *44*(5), 337–348.

Yang, H., Wong, K. I., & Wong, S. C. (2010). Modeling urban taxi services in road networks: progress, problem and prospect. *Journal of Advanced Transportation*, *35*(3), 237–258.

Yang, H., Wong, S. C., & Wong, K. I. (2002). Demand–supply equilibrium of taxi services in a network under competition and regulation. *Transportation Research Part B: Methodological*, *36*(9), 799–819.

Yang, H., Ye, M., Tang, W. H., & Wong, S. C. (2005). Regulating taxi services in the presence of congestion externality. *Transportation Research Part A: Policy and Practice*, *39*(1), 17–40.

STAKEHOLDERS SALIENCE IN ENERGY SECTOR

Liliana FELEAGĂ, Bogdan-Ștefan IONESCU, Mihaela DUMITRAȘCU
Bucharest University of Economic Studies, Romania
liliana.feleaga@cig.ase.ro

Abstract
The stakeholders salience framework has become, over the past two decades, a tool often used to identify, asses and prioritize stakeholders and has demonstrated considerable theoretical and managerial implications. The objective of this paper is to determine to what extent stakeholder salience influences how different stakeholder categories are represented in the sustainability reports of entities from energy sector. In this respect, an interpretative content-based analysis of the social and environmental information disclosed by entities is used. The sample encompasses six energy entities that are comprised of Dow Jones Sustainability Europe Index (DJSI) constituent's list on September 19, 2016. The results highlight that stakeholders who hold power have a high score of salience, being followed by those who possess legitimacy and then by those who possess urgency. The obtained results suggest the need to continue to focus on the normative theory of the stakeholders. The results also highlight that there is a link between the stakeholder salience, on the one hand, and the number and type of attributes held by each category of stakeholders, on the other hand. Stakeholders who hold power have a high score of salience, being followed by those who possess legitimacy and by those who possess urgency.

Keywords: *stakeholders, sustainability reporting, stakeholder salience, stakeholder claims, power, energy*

JEL Classification: G30 L69 L97 M41 Q01 Q49 Q56

1. INTRODUCTION

Reporting of environmental and social information represents often a challenge for entities to cope with. The requirements on this line come from different sources and cannot be ignored even though they are often complex and it is not easy for managers to decide which issues should respond with priority, given that the entity's resources are limited. As a result, managers have to permanently assess how they respond to different categories of stakeholders, taking into account the attributes they possess. It should be noted, however, that “management may view one stakeholder as inconsequential or minor one day; but find that same group demanding their full attention the next day” (Stephens et al, 2011).

In order to identify stakeholder relevance some researchers (Mitchell et al, 1997) proposed stakeholder salience theory. Stakeholder salience is the degree to which stakeholders are visible, vocal and important to an entity, and is determined by three attributes of stakeholders: power, legitimacy, and urgency. The stakeholder salience framework has become, over the past two decades, a tool often used to identify, asses and prioritize stakeholders and has demonstrated considerable theoretical and managerial implications.

The objective of this paper is to determine to what extent stakeholder salience influences how different stakeholder categories are represented in the sustainability reports of entities from the energy sector. In this respect an interpretative content-based analysis of the social and environmental information disclosed by entities is used. The results highlight that there is a link between the stakeholder salience, on the one hand, and the number and type of attributes held by each category of stakeholders, on the other hand. Stakeholders who hold power have a high score of salience, being followed by those who possess legitimacy and by those who possess urgency.

Our article is structured as follows: first, several definitions of stakeholders, the salience framework and the research that applied it empirically are provided. Second, we described our case study, data collection, analysis techniques and our findings. We then concluded with a discussion of limitations and suggestions for future research.

2. LITERATURE REVIEW

The organizational performance of an entity can be analyzed and assessed, to a certain extent, on how managers interact with its stakeholders (Wood, 1991 and Clarkson, 1995). The academic research has reserved a special place for stakeholders, even though this concept becomes vague when it is broken by the American cultural context (Damak-Ayadi et al, 2005). Thus, according to Freeman (1984), the stakeholder is "any group or individual who can affect or is affected by the achievement of the organization's objectives". Donaldson and Preston (1995) consider that stakeholders are "persons or groups with legitimate interests in procedural and/or substantive aspects of corporate activity". Similarly, Clarkson (1995) speaks of groups or individuals holding "ownership, rights or interests" in an organization. The definition proposed by Bryson (1995) is, however, the most comprehensive one: "a stakeholder is defined as any person, group, or organization that can place a claim on an organization's position, resources or output or is affected by that output."

Starting from the existing definitions, stakeholders have been classified in a variety of ways in their attempt to achieve their prioritization (Nutt, Backoff, 1992). Thus, Caroll (1989) distinguishes between primary stakeholders, who have a direct and contractual relationship with the entity, and secondary stakeholders who, although not having contractual relations with the entity, may be affected by its actions. Kaler (2002) classifies stakeholders in claimants, influencers or a combination of both categories, and Buysse and Verbeke (2003) distinguish between internal primary stakeholders (employees, shareholders and financial institutions) and external primary stakeholders (customers and suppliers).

Freeman (1984) believes that managers should identify all stakeholder groups, should determine the importance of each group and the extent to which their requirements are currently met by the entity and, based on the results obtained, should modify the entity's policies in order to take into account requirements remained unsatisfied.

In practice, not all entity-stakeholders relationships are considered equally important to managers. This is explained by the complexity of stakeholder relations and the dynamic nature of the entity (Pelle, 1997). In addition, the managers' interest in stakeholders' requirements is significantly influenced by the financial performance of the entity (Buysse, 2003). That being said, Mitchell et al. (1997) argued that a theory of stakeholder salience "must explain to whom and to what managers actually pay attention". They have identified three attributes of stakeholder salience: the power that a stakeholder group is perceived to have, the legitimacy that it is considered to have and the perceived urgency for its requirements.

Power is defined as the ability of stakeholders to influence the organization's decisions and the distribution of value (Lépineux, 2003). The use of power as an element of the stakeholder salience is also supported by the neo-institutional theory that coercive pressure strongly influences managers' decisions. Legitimacy is the generalized perception that a group's actions are appropriate in the context of the social system (Morsing et al, 2006). Legitimacy is often connected with power, because normally a manager will not pay attention to a strong actor that he does not considered to be legitimated. The third attribute is the urgency and represents the extent to which a group of stakeholders believe that its claims are time sensitive or critical (Mitchel at al., 1997).

The level of salience varies according to the number of attributes that stakeholders have (Gao and Zhang, 2006). Generally speaking, it is considered that the level is low when the stakeholders have only one attribute, moderated when they have two attributes, respectively high when they have all three attributes. And, obviously, managers pay the greatest attention to the stakeholder groups that have the highest level of salience (Dooley and Lerner, 1994), however, they prioritize their requirements. In this respect, stakeholders are ranked in the following categories: definitive, dominant, dependent, dangerous, dormant, discretionary, demanding, and non-stakeholders (Mitchell et al, 1997). The features of these categories are comprised within Table 1.

Table 1 Stakeholder types according to the salience attributes possessed

Stakeholder types	Characteristics
Dormant	They have power to impose their desires, but they do not have legitimacy and urgency.
Discretionary	They have legitimacy, but they do not have power in order to influence the organization, and their requirements are not perceived as urgency.
Demanding	They have urgency requirements, but they do not have power and legitimacy.
Dominant	They have power and legitimacy, that have an impact on entity.
Dangerous	They have power and urgency, but they do not have legitimacy. They are perceived as dangerous, because they can make pressure.
Dependent	They have urgency and legitimacy, but they do not have power.
Definitive	They have power, legitimacy and urgency.
Non-stakeholders	They do not have power, neither legitimacy, nor urgency.

Source: authors, based on previous research[2]

Many authors later used the conceptual framework created by Mitchell et al (Mitchell et al, 1997). Thus, Agle et al. (1999) demonstrated empirically that there is a positive relationship between the number of attributes held by a stakeholder group and stakeholder salience. Ryan and Schneider (2003) investigated, based on archive information, salience for six categories of institutional investors and recommended that managers be queried about their perception of power, legitimacy and urgency. Magness (2008) studied the reactions of shareholders and managers in the context of two environmental accidents in the mining industry, and pointed out that the stakeholder status is determined by the decision-maker. Parent and Deephouse (2007) highlighted the importance of urgency, stating that, in principle, stakeholders that have the urgency of being the most important attribute are groups of activists, but they concluded that power and legitimacy are more important attributes for the salience stakeholder.

Mitchell et al. (1997) suggested that the stakeholders' attributes are variable and that the peculiarities of managers moderate the relationship between these attributes and salience. Rowley (1997) pointed out that the influence of the stakeholders is not only determined by their attributes, but also by how different groups interact and form a network. He demonstrated that entities that are the focus of several stakeholder groups are willing to show higher social performance if those groups coordinate their efforts. Winn and Keller (2001) consider that stakeholder salience is not just about the number of attributes held, but about the degree to which a stakeholder possesses those attributes. Introducing different degrees for the three attributes leads to a more differentiated stakeholder salience image. In addition, this concept is flexible in the sense that, over time, some attributes are lost, others are acquired, and there is the possibility of migrating from one category of stakeholders to another.

3. METODOLOGICAL ASPECTS: SAMPLE SELECTION, RESULTS AND DISCUSSIONS

3.1 Sample Selection

The objective of this study is to determine to what extent stakeholder salience influences how different stakeholder categories are represented in the sustainability reports of entities from energy sector.

The sample encompasses the entities from energy sector, the Dow Jones Sustainability Europe Index (DJSI) constituent's list on September 19, 2016. It was verified that these entities have available sustainability reports for 2016 and, in addition, the reports would be drawn up in accordance with GRI (2013). The final sample comprises 6 entities from 5 countries and is

presented in Table 2. Weber and Marley (2012) demonstrated that nationality is not a differentiation factor for stakeholder salience. Therefore, assuming the inclusion in the sample of entities from just five countries will have a major impact on the results obtained.

Table 2 Company selection

No.	*Company*	*Country*
1	*Galp Energia SGPS SA*	*Portugal*
2	*NesteOyl*	*Finland*
3	*Repsol SA*	*Spain*
4	*SBM Offshore NV*	*Netherlands*
5	*Technip SA*	*France*
6	*Total SA*	*France*

Source: authors, based on DJSI constituents' list

Most of the research studies on sustainability have focused on the content analysis of social and environmental information disclosed by entities (Milne and Adler, 1999; Guthrie and Abeysekera, 2006). Content analysis is a technique of understanding and analyzing the content of a text. "The content refers to words, meanings, pictures, symbols, ideas, themes or any messages that can be communicated" (Cho, 2009). The idea behind this technique is to encode qualitative and quantitative information into predefined categories in order to discover patterns in the presentation and reporting of information (Guthrie and Abeysekera, 2006).

3.2 Content analysis of sustainability reports

Similar to many previous research, our study is limited to documentary evidence and aims to identify "the pattern and content of communication" (Beck et al, 2010). For content analysis of sustainability reports, we considered the methodology developed by Krippendorff (2011), because he identified four units of analysis: sampling units, context units, recording units and enumeration units. Adapted to our study, sampling units are the 2016 sustainability reports. Context units are the narrative sections of the sustainability reports. In order to avoid subjectivity and ambiguity in interpretation, the president's message, forewords, assurance reports, appendices, images and graphs presented in the reports were excluded from the analysis. Recording units are the different categories of stakeholders represented in the sustainability reports. Based on the literature and the GRI guide (2013) and after a reading of the reports published by the entities included in the sample, several categories of stakeholders were identified: employees, customers, suppliers, shareholders, community, natural environmentand non-governmental organizations. Finally, enumeration units are represented by phrases. The use of phrases as enumeration unitshelps seeking shared meanings (Rowley, 1997) and permits the comparability with other similar studies (Winn et al, 2001).

The interpretation of texts from the sustainability reports was conducted in relation to the attributes of stakeholder salience (Mitchell et al, 1997), while taking into account the requirements of the GRI (2013) on the relevant social and environmental elements for each category of stakeholders.

3.3 Results and discussion

Based on the GRI guidelines (2013), the potential requirements for the different stakeholder categories were identified and, after analyzing all the statements in the report that were of interest, the extent to which these requirements were met was assessed as percentage. The results of the content analysis in terms of stakeholder requirements are found in Table 4 and these are interpreted in correlation with the expected disclosure level for each stakeholder category.

Table 3: Stakeholder salience for year 2016

Stakeholders group	Stakeholder salience mapping	Stakeholder salience (%)
Employees	Dominant: 2 entities	35%–43%
	Definitive: 4 entities	65%–77%
Customers	Dominant: 3 entities	38%–48%
	Definitive: 3 entities	59%–72%
Suppliers	Dominant: 1 entity	52%
	Discretionary: 5 entities	25%–35%
Shareholders	Dominant: 4 entities	49%–54%
	Discretionary: 1 entity	45%
	Definitive: 1 entity	68%
Community	Definitive: 6 entities	39%–72%
Natural environment	Dependent: 5 entities	40%–70%
	Definitive: 1 entity	60%
Non-governmental organizations	Discretionary: 6 entities	25%–42%

Source: authors, based on research

In most entities, employees are perceived as definitive stakeholders. The interpretative analysis of the information in the sustainability reports highlighted that employees have utilitarian power and legitimacy. Power is closely related to the skills they possess and the legitimacy of power. It is noted that some entities have high percentages for employee salience (77%), while other entities only reach 35% of the employee-related issues.

For half of the entities, customers are considered final stakeholders and for the rest of them dominant stakeholders. It can be noticed that while in the case of some entities the customer group is very well served (72%), in others the score is only 38%. Different attitude may be associated with the fact that there are differences from one country to another in terms of competition in the energy field. In other words, we can see that the power of customers influences a high level of attention given to them in the case of some entities and the relatively low level of attention given by other entities.

As far as suppliers are concerned, their scores are very small, as only a small part of the subjects of interest to them are present in the sustainability reports. For five entities, suppliers were classified as discretionary. This means that they do not have power and urgent claims, but their interest in social and environmental information is legitimate.

Shareholders are classified in different types as there are differences between the entities in the sample as regards ownership of shares. Thus, some entities are mainly owned by institutional investors, by large foreign companies or by the state, and for others the shareholdings is free float. Under these circumstances, in 4 entities, shareholders are dominant stakeholders, in one entity they are definitive shareholder and in other discretionary stakeholders. However, there is no major difference in the degree to which shareholders' claims are represented in the reports. This is still a proof that power is a determining factor of the salience stakeholder, the absence of urgency and legitimacy, not having too much influence on the salience of entities' shareholders.

The community is the only category of stakeholders characterized by all entities as a definitive stakeholder. Although the score for this group varies from 39% to 72%, the analysis of the reports highlights that they include consistent sections devoted to activities for local communities, especially educational programs, sporting events, sponsorships and social services. It should be noted, however, that GRI topics on which we have identified as relevant, refer rather to the link between the primary operations of entities and their effects on the well-being of the community.

Natural environment is a dependent stakeholder for 5 entities, being perceived as having urgency and legitimacy but not power. However, scores for the natural environment are high, which means that entities perceive its importance in the current context.

For all six entities in the sample, non-governmental organizations are discretionary stakeholders, because they are considered to be legitimate parties, based on the justifiable nature of their expectations and their willingness to cooperate with the entities. The important aspect of the discretionary stakeholders is that, in the absence of power and urgency, there is no pressure on managers to engage in active relationships with such groups, even if managers choose to do so. It is noted that the score for non-governmental organizations ranges between 25% and 42%.

The analysis shows that there is a link between the stakeholder's salience, on the one hand, and the type and value of stakeholder attributes, on the other hand. Thus, many of the definitive and dominant stakeholders' requirements are met through corporate sustainability reporting. On average, stakeholders that possess power have the highest scores on salience. They are followed by those who have urgency and legitimacy. In addition, many of the requirements of the definitive and dominant stakeholders are satisfied through corporate sustainability reporting. The results are similar to those obtained by Parent and Deephouse (2007), which demonstrated that the more attributes stakeholders, the salience is higher.

4. CONCLUSIONS

In the context in which environmental reporting is a major challenge for accounting practice and research, our study investigates to what extent stakeholder salience influences how different stakeholder categories are represented in the sustainability reports. In order to achieve this, we proceeded to content analysis accompanied by an interpretive analysis for a sample of entities from energy sector. First of all, we set up a general list of stakeholders mainly based on the requirements of GRI guidelines. We then analyzed the sustainability reports of the entities in the sample to determine the stakeholder attributes in agreement with the conceptual framework of Mitchell et al. (1997). We determined the stakeholders' typology and the level of salience by assessing the degree to which managers prioritize stakeholders' requirements when formulating corporate sustainability reports. In this study, we did not intend to judge corporate sustainability reporting for sample entities, nor to describe how they managed the divergent interests of stakeholders, but only to understand the variables that determine stakeholder salience.

The obtained results allow us to conclude that stakeholder salience theory can be used to determine which stakeholders' requirements are likely to be met through corporate sustainability reporting. Power, legitimacy and urgency appear as valuable hints for stakeholder salience. Thus, power is considered a highly relevant attribute for the managers of the entities in our sample. Then is legitimacy, which is considered a key factor in determining whether an individual or a group is recognized as a stakeholder by the entity, and on the last place is the urgency. Given that all entities in the sample have applied GRI, we believe that the differences in stakeholder salience and sustainability reports are related to the managers' perceptions of the entities rather than to the external reporting guidelines applied.

We consider that the extent to which these results can be generalized is low given the small number of entities included in the sample and the relatively subjective nature of the assessments made in accordance with the chosen research method. There is much scope for further research in this area. Thus, the current study could be extended by resorting to a larger sample and by conducting a multiple financial exercise analysis. Alternative research methods could also be used, such as conducting interviews with different stakeholder categories to test how they perceive organizational activities.

Disclosure statement

The authors declare they do not have any competing financial, professional, or personal interests from other parties.

BIBLIOGRAPHY

Agle B.R., Mitchell, R. K. and Sonnenfeld, J.A. (1999). Who matters to CEOs? An investigation of stakeholder attributes and salience, corporate performance, and CEO values, Academy of Management Journal, 42, 507–525.

Beck, C.A.; Campbell, D.; Shrives, P.J. (2010). Content analysis in environmental reporting research: Enrichment and rehearsal of the method in a British-German context, British Accounting Review, vol. 42, n. 2: 207–222.

Bryson, J. (1995). Strategic planning for public and non-profit organization (Rev. Ed.), San Francisco: Jossey-Bass Publishers.

Buysse, K., and Verbeke, A. (2003). Proactive environmental strategies: A stakeholder management perspective, Strategic Management Journal, 24, 453-470.

Caroll A. B. (1989). Business and society: ethics and stakeholder management, O.H.: South Western,Cincinatti.

Cho, C.H. (2009). Legitimation strategies used in response to environmental disaster: A French case study of Total SA‟s Erika and AZF incidents, European Accounting Review, vol. 18, n. 1: 33–62.

Clarkson, M. (1995). A stakeholder framework for analyzing and evaluating corporate social performance, Academy of Management Review, 20, 92–117.

Damak-Ayadi, S. and Pesqueux, Y. (2005). Stakeholder theory in perspective. Corporate Governance: The international Journal of Business in Society, 5–21.

Donaldson. T. and Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications, Academy of Management Review, 20, 65–91.

Dooley, R. and Lerner, L. (1994). Pollution, profits and stakeholders: the constraining effect of economic performance on CEO concern with stakeholder expectations, Journal of Business Ethics, 13, 701–711.

Freeman, R.E. (1984). Strategic management: A stakeholder approach, Boston: Pitman. *Latest edition Strategic Management: A Stakeholder Approach.*

Gao, S.S. and Zhang, J.J. (2006). Stakeholder engagement, social auditing and corporate sustainability, Business Process Management Journal, 12, 722–740.

Guthrie, J. and Abeysekera, I. (2006). Using content analysis as a research method to inquire into social and environmental disclosure, Journal of Human Resource Costing and Accounting, 10, 114–126.

Kaler, J. (2002). Morality and strategy in stakeholder identification, Journal of Business Ethics, 39, 91–99.

Krippendorff, K. (1980). Content Analysis. An introduction to its methodology, Sage Comm Text Series, Beverly Hills, Ca.

Lépineux F. (2003). Dans quelle mesure une entreprise peut-elle être responsable à l'égard de la cohésion sociale ?, Thèse de Doctorat en Sciences de Gestion, C.N.A.M., Paris.

Magness, V. (2008). Who are the stakeholders now? An empirical examination of the Mitchell, Agle, and Wood theory of stakeholder salience. Journal of Business Ethics, 83(2), 177–192.

Milne, M.J.; Adler, R.W. (1999). Exploring the reliability of social and environmental disclosures content analysis, Accounting Auditing Accountability Journal, vol. 12, n. 2: 237–256.

Mitchell, R. K., Agle, B. R. and Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts, Academy of Management Review, 22, 853–886.

Morsing, M., Schultz, M. (2006). Corporate social responsibility communication: Stakeholder information, response and involvement strategies. Business Ethics: A European Review, 15 (4), 323–3.

Nutt, P.; Backoff, R. (1992). Strategic management of public and third sector organizations: a handbook for leaders, San Francisco, CA: Jossey-Bass.

Parent, M.M. and Deephouse, D.L. (2007). A case study of stakeholder identification and prioritization by managers, Journal of Business Ethics, 75, 1–23.

Pelle Culpin C. I. (1998). Du paradoxe de la diffusion d'informations environnementales par les entreprises européennes, Thèse de Doctorat, Université de Paris IX Dauphine.

Ryan, L. V. and Schneider, M. (2003). Institutional investor power and heterogeneity: implications for agency and stakeholder theories, Business & Society, 42, 398–429.

Rowley, T. J. (1997). Moving beyond dyadic ties: A network theory of stakeholder influences. Academy of Management Review, 22, 887–910.

Stephens, K.K., Malone, P. C. and Bailey, C.M. (2005). Communicating with stakeholders during a crisis: evaluating message strategies, Journal of Business Communication, 42, 390–419.

Winn, M.I. and Keller, L.R. (2001). A modeling methodology for multiobjective multistakeholder decisions: Implications for research, Journal of Management Inquiry, 10, 166–182.

Weber, J. and Marley, K.A. (2012). In search of stakeholder salience: Exploring corporate social and sustainability reports, Business & Society, 51, 626–649.

Wood, D. (1991). Corporate social performance revisited, The Academy of Management Review, 16, 691–717.

BANK DEBT MATURITY AND BOOK-TAX CONFORMITY OF PRIVATE COMPANIES: EVIDENCE FROM POLAND

Anna BIAŁEK-JAWORSKA
Faculty of Economic Sciences University of Warsaw, Poland
abialek@wne.uw.edu.pl

Piotr WÓJTOWICZ
Faculty of Management Economic University of Cracow, Poland
wojtowip@uek.krakow.pl

Abstract

Hope and Vyas (2017) recognize the demand-side of relations between finance and accounting quality of private enterprises and indicate that it requires more in-depth studies. While public companies have already been thoroughly examined, it is still necessary to broaden the knowledge about the impact of accounting quality on access to finance of private enterprises. For that reason, the analysis conducted in our article covers the discussion on the impact of tax law on accounting, and as a result on sources of finance – capital structure and bank loan. We investigate the influence of book-tax conformity on maturity of the bank debt of private companies in Poland. In our article we attempt to answer the following research questions: whether the accounting quality plays a role in the access to finance of private enterprises and impacts the loan covenants, i.e. maturity of financing with bank debt? Whether the reduction of asymmetrical information thanks to the higher accounting quality, enables lending for longer period? To answer this questions we verify if enterprises with higher accounting quality (lower discretional accruals and higher book-tax differential (lower book-tax conformity)) obtain finance with higher maturity of the bank debt. We find that due to delivering higher quality financial information to lenders, enterprises obtain bank loans for a longer period. While in the case of book-tax conformity, our predictions are true only for profitable enterprises. Moreover, more risky enterprises prefer to use funding for longer periods to secure benefits from increase in their sale thanks to growth opportunity.

Keywords: *debt maturity, book-tax conformity, bank loan, capital structure, private firms*

1. INTRODUCTION

This paper investigates the influence of book-tax conformity (the link between tax law and the accounting system) on maturity of bank debt of private firms in Poland. We are interested in answer the following research questions: to which extent financial results and taxable income mirror each other (measured by book-tax conformity) in the case of private companies in Poland and whether lower book-tax conformity has the positive impact of maturity of the bank lending. This means that we attempt to find whether the reduction of asymmetrical information thanks to the higher accounting quality, enables lending for longer period in Poland, which has the lowest bank debt to GDP ratio in the European Union.

This research extends the preliminary analysis of private corporate book-tax conformity conducted in Białek-Jaworska (2016) study entitled "*Book-tax conformity in Polish private companies*" taking into account relationship between accounting quality and its usefulness for predictability of future cash flows with bank-lenders' demand for financial information and tendency to increase debt financing maturity. The transition of Poland from a centrally-planned, predominantly state-owned economy to one based mainly on private companies, together with the urgent problem of bad corporate debt in the banking system, resulted in limited access to bank loans and a low share of debt in the capital structure of private firms. Increasing the opportunity to acquire external funding has required bank system reform and the establishment of a reliable accounting system. However, even after two decades, tax records still play the dominant role in providing financial information for at least 90% of the business sector in Poland, i.e., for those active firms that do not keep accounts or

prepare financial statements (GUS, 2015). As a consequence, at least in part, the non-financial corporate debt-to-GDP ratio in Poland is still one of the lowest in the European Union, although it increased from 20% in 1995 to 46% in 2015. Our belief that these institutional factors could influence private corporate accounting practice and reporting in Poland motivated us to further study this topic. In this paper, we attempt to answer the following research question: Are lenders really interested in high book-tax conformity when they lend money to borrowers for longer period? We use panel analysis of data on Polish private limited liability companies and non-listed joint-stock companies for the years 2003–2013. We find that due to delivering higher quality financial information to lenders in the scope of accruals, enterprises obtain bank loans for a longer period. While in the case of book-tax conformity, our predictions are true only for profitable enterprises. This means that enterprises with higher book-tax differential (lower book-tax conformity) have lower maturity of the bank debt, except ones that generate profits. Besides, our findings indicate that more risky enterprises (with positive growth in sales) prefer to use funding for longer periods to secure benefits from their growth opportunity.

Besides financial, insurance and state institutions, it is obligatory for private limited liability companies and joint-stock companies to maintain accounting books in Poland. Book-tax differential results from differences between accounting and tax law purposes and approaches to the recognition of costs and revenues. The main sources of book-tax differences are impairment of assets, valuation at fair value, provision for warranty repairs, foreign exchange differences from the valuation as at the balance sheet date, provisions for employee benefits, interest accrued but not paid, interest due but not yet received, and unpaid wages, etc. These are temporary book-tax differences which are not respected by tax law in the current year, but which will reverse in next period. Due to the reversal, they are a subject to deferred income tax. In contrast, permanent book-tax differential contains tax exempt income and non-deductible expenses. The first covers tax-free dividend income and grants, whereas the latter mainly includes costs of representation (and private placement advertising till 2006[1]), catering services, donations, penalties, fines, interest for late payment of taxes and social insurance, and others. There is little empirical research on private firm financial reporting and book-tax conformity, mainly due to the lack of reliable data. With this study, we contribute to the literature by exploiting the fact that, in Poland, private legal entities are required to conduct accounts both to calculate taxable income and to prepare an annual financial statement (in accordance with Polish Accounting System).

Book-tax conformity means the links between income tax and financial reporting rules, and it measures to what extent tax rules influence financial accounting measurements. For this purpose, the differences between accounting income and taxable income are used. The taxable income is estimated by taxation divided by nominal tax rate. The larger the book-tax differential, the weaker the relationship between taxable income and accounting income (and the lower the book-tax conformity).

We use alternative empirical measures, proposed by Watrin, Ebert, and Thomsen (2014) and Tang (2015), to calculate book-tax conformity on a single-entity level. Although corporate reporting relying on records kept for tax purposes results in lower earnings quality (Hanlon, Laplante, and Shevlin, 2005; Hanlon, Maydew, and Shevlin, 2008; Plummer and Tse, 1999; Easton, Monahan, and Vasvari, 2009), debt holders are likely to be less sensitive to decreases in earnings informativeness than equity holders. Therefore, we identify the impact of book-tax conformity on bank debt maturity. While prior studies typically have examined book-tax conformity at the international level (largely in relation to earnings management and tax avoidance), our study is among the first to consider the book-tax conformity of private companies from one country and compare the factors determining book-tax conformity among one-book and two-book accounting systems. A one-book system is defined as a situation in which accounts are kept according to tax regulations with the consequence that deferred income tax seems to be avoidable. In the two-book system, companies are required to maintain two sets of accounts: one for investors, creditors, and other stakeholders, prepared according

[1] The nature of advertising was determined by the right to deduct it as part of the tax-deductible costs until 2006, and from 2007 advertising expenses are included in tax costs in full, regardless of the nature of advertising (Art. 23 par. 1 p. 23 of the Act on tax of income from natural persons and Art. 16 par. 1 p. 28 of the Corporate Income Tax Act).

to accounting standards, and another prepared for tax purposes, according to accounting standards with adaptations stipulated in the tax regulation. In the two-book accounting system, deferred income tax is commonly used for temporary book-tax differences, whereas there is no deferred income tax in the one-book accounting system, which is conducted mostly for tax purpose. In Poland, accounts are required by corporate income tax law to calculate taxable income of legal persons. The dominance of one-book accounting observed for Polish private companies (74%) shows that deferred tax does not play a substantial role. Our in-depth analysis reveals that firms with a one-book system have a lower permanent and temporary book-tax differential overall than two-book private companies in Poland, while the Watrin et al. (2014) measure of book-tax conformity indicates the opposite results. As pointed out by Tang (2015), this results from the two-book system's application of deferred tax, which eliminates temporary book-tax differences when measuring the book-tax conformity as proposed by Watrin et al. (2014). Therefore, we applied this alternative approach introduced by Tang (2015) to compare determinants of *permanent* and *temporary* book-tax differences between one-book and two-book firms. We were able to conclude that these total book-tax differences are associated with information needs, as family firms have a lower book-tax differential overall while members of business groups (domestic and international) have a higher book-tax differential (Białek-Jaworska, 2016).

Our findings contribute to recent research on the relationship between book-tax conformity and capital structure (Blaylock, Gaertner, and Shevlin, 2017) which focuses on total debt share in the market value of total assets. These results indicate that higher book-tax conformity increased reliance on debt in the corporate capital structure in the U.S. and caused a shift from equity to debt financing. Our findings confirm the positive association between increased book-tax conformity (this is lower book-tax differential) and bank debt maturity. This means that, in Poland, private companies practicing bookkeeping could improve their access to long-term debt financing by increasing book-tax conformity. Why banks would be more willing to grant loans to companies who operate in the more simplified accounting system, acting under the requirements of the tax law? One of the possible reasons is the greater trust for the results reported to the Tax Office, due to the higher efficiency of criminal and tax authorities as well as higher penalties for avoiding taxes and possible manipulations of tax reporting. Prior research has shown that information asymmetry between lender and borrower hampers lender readiness to provide finance (Coluzzi, Ferrando, and Martinez-Carrascal, 2012) and limits private firms (mainly SMEs) access to bank lending (Beck and Demirguc-Kunt, 2006; Chua, Chrisman, Kellermanns, and Wu, 2011). To assess a firm’s credit worthiness, lenders are likely to prefer the most reliable information regarding downside risk and the evaluation of the firm’s collateral, as well as financial statements that are useful in assessing the timing and riskiness of the firm’s expected future cash flows from existing projects and anticipated investments (Armstrong, Guay, and Weber, 2010). At the same time, it is believed that the accounting system gives a better perception of enterprise’s situation than the registration system for tax purposes. However, during the loan agreement, after the loan is granted, banks require reliable and timely measures of financial performance to monitor existing capital investments, resulting in changes in financial reporting. Therefore, banks should rather enforce keeping accounts and recognition of deferred tax, if they believe that such system is the best in terms of the spectrum of provided information. Our findings reveal that companies with higher book-tax conformity (lower permanent and temporary book-tax differences) are indebted to a bank for a longer period. This means that lender demand for information increases the book-tax conformity overall, while the impact is lower in the case of profitable borrowers. We contribute to the literature by analyzing effects of lower accounting quality (due to higher book-tax conformity) on a basis of a novel dataset of 30,000 private limited liability and non-public joint-stock companies.

The remainder of the paper is constructed as follows: Section 2 presents the reforms regards bank lending in Poland. Section 3 describes the interplay between tax and financial reporting as one of key influences on the development of accounting in Poland. Section 4 develops hypotheses. Section 5 outlines the research design and section 6 provides the results of the analyses. Finally, Section 7 is the study's conclusion.

2. REGULATORY REFORMS REGARDS BANK LENDING

In the case of Poland, dominant state or foreign companies enjoyed lower costs of credit compared to new entrants, and were able to potentially “crowd out” new entrants in credit markets (Hussain, 1994). The lack of external sources of finance impeded the development of new private firms and seemingly halted private sector growth. Retained profits were the main source of finance for investments of enterprises in Poland (Balcerowicz, Balcerowicz, and Hashi, 1998). Furthermore, this situation reduced investors’ and lenders’ demand for financial information, thereby discouraging firms from using advanced accounting. Companies confined themselves to respecting tax regulations and, as a consequence, their accounting books were also mainly based on tax regulations.

Sources of funding are an essential issue for business enterprises. Because of the limited availability of external capital, they invest less, do not use leverage, and they grow more slowly (Rajan and Zingales, 1995). However, in Poland, most of the restructuring programmes envisaged writing off overdue payments to the treasury, the social security system and other forms of subsidy. On the one hand, this weakened financial discipline and raised expectations of the same debt relief and future financial injections. But, on the other hand, the level of public subsidies in Poland was too high –1.3% of GDP in 2002 compared to 1.0% in the EU – with a predominance of hard-to-monitor indirect instruments (Kozarzewski, Radziwiłł, and Walewski, 2004). In 1990–1992, bad debts owed to banks seriously threatened the stability of the Polish banking system. These debts were heavily concentrated in about 10% of the enterprise sector, with the remaining 90% of that sector almost debt-free (Gomułka, 1993). In 1993, the Enterprise and Bank restructuring programme was launched, preventing a crisis in the Polish banking system with the help of bank portfolio restructuring and recapitalisation, and bank-enterprise conciliation agreements, in addition to improving bank capacity in risk assessment (Kozarzewski et al., 2004).

As a result of the aforementioned reforms, Poland was (and still remains) one of countries with the least debt-to-GDP ratio for non-financial corporations in the European Union, at 46.1%, while Germany stands at 54.9%, the Czech Republic at 56.6%, and a staggering 90.4% for Hungary as of mid-2015. During last two decades in Poland, non-financial corporate debt-to-GDP ratio increased by 26 percentage points, from 19.9%, as of the end of 1995, to 46.1% of GDP in the middle of 2015. In the case of the euro area, non-financial corporate debt-to-GDP ratio rose from 51.3% of GDP at the end of 1997 to 104.8% as of 30th June 2015. Although in Poland the percentage of companies that use banking products to finance their activities is increasing, it is much lower than the EU average (ZBP, 2015; Dobbs, Lund, Woetzel, and Mutafchieva, 2015). Often, even creditworthy businesses decide not to obtain external capital because of the high costs of bank loans not only financial, but also administrative costs, including an obligation to audit financial statements. Białek-Jaworska and Nehrebecka (2014) show SMEs in Poland use much less bank credit than their creditworthiness would allow, implementing financial strategies that follow the 'pecking-order' theory. In Poland, only 10% of active firms do bookkeeping and prepare financial statements (GUS, 2015) needed for the analysis of a loan application.

3. THE INTERPLAY BETWEEN TAX AND FINANCIAL REPORTING

In Poland, the central setting of the reporting model and accounting principles fell within the competence of the Ministry of Finance. The measurement concept was based on the full accrual basis (Nowak, 2015). The core of the Accounting Act is its emphasis on disclosure rather than on measurement and giving a "true and fair view" of an entity’s financial position (wealth and liabilities), and financial performance and profitability. The 1994 Accounting Act introduces cash-flow reporting (solely for larger companies), the concept of deferred tax, business group accounting, and the increased role of the prudence principle through provisions for various risks and contingencies.

However, the interplay between tax and financial reporting is one of the key influences on the development of accounting (e.g. unwillingness to adopt the IFRS). This is because the tax system

involves specific principles of recognising of revenues and the costs of their realisation, strict principles of fixed assets and intangibles amortization and depreciation, and the adjustment of their value. In 1992, the Act on corporate income tax empowered the Minister of Finance to determine, by way of decree, which property elements are regarding as tangible assets and which as intangible, and to lay down the principles of their amortization, depreciation, and value adjustment. The high impact of the tax system on accounting in Poland results in differences in how much the accrual basis is modified, and the method of applying the matching concept. Entities can make only tax closures, but this would result in limited credibility as a consequence of the loss of the neutrality of their financial information (Nowak, 2015). Under high book-tax conformity, tax policymakers are likely to intervene in the standard-setting process (Atwood, Drake, and Myers, 2010). In 2013, only 10.2% of active enterprises did bookkeeping, primarily legal persons (limited liability and joint-stock companies). Although Poland's accession to the European Union, and the related preparations in the pre-accession period, undoubtedly increased the awareness of Polish enterprises in terms of the benefits of bookkeeping, in 2001 and 2002 there were still large companies employing over 250 employees which did not maintain accounting books. Although Poland has a well-developed legal framework which regulates enterprise sector functioning, the main threat is the poor enforcement of existing laws (Kozarzewski et al., 2004), particularly in the scope of private corporate bookkeeping and financial reporting.

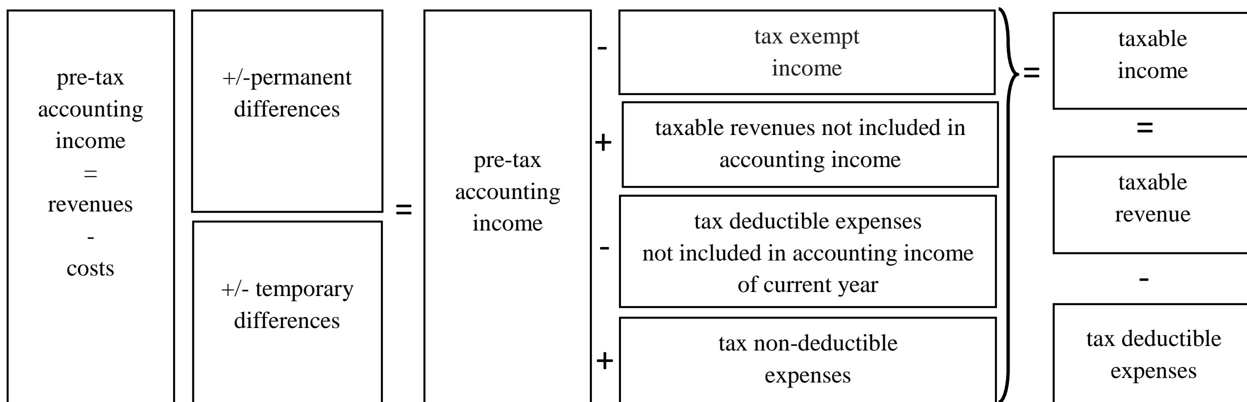
Taxpayers are required to keep their accounting records in accordance with separate regulations. This should ensure the identification of: the taxable income (or loss), the tax base, the tax due for the tax year, as well as a presentation of fixed assets and intangible assets with information needed to calculate depreciation write-offs (Art. 9.1 of the Corporate Income Tax Act of 15 February 1992). Taxpayers required to prepare a financial report shall submit their financial reports to the Tax Office together with a copy of the shareholders' meeting resolution where the company financial report is approved. Taxpayers required to have their financial report audited shall, in addition, submit the chartered auditor’s statement and report within 10 days of the annual report approval (Art. 27 of the Corporate Income Tax Act). The additional information attached with the financial report shall include a specification of the main items differing the taxable base from the gross financial income.

The permanent book-tax differential results from differences between accounting and tax law purposes and approaches to the recognition of costs and revenues. Temporary differences, on the other hand, are caused by the fact that accounting principles and tax regulations do not define in the same way the moment when a revenue is generated or a cost is incurred. Accounting books are a source of information for tax-related purposes and they are expected to enable the correct identification of taxable income. Figure 1 presents taxable income identification methods: (1) pre-tax accounting income adjusted by expenses and revenues not acknowledged by the tax law or the accounting act. The latter includes revenues and expenses that had been excluded from the income in previous years, but became revenues and expenses in the current period, e.g. currency exchange differences from the balance sheet valuation in previous years; (2) pre-tax accounting income adjusted by permanent and temporary book-tax differences; (3) taxable revenue over tax deductible expenses (recognized by income tax law).

The book-tax differential can be disaggregated into differences which are permanent and those which reverse over time. Temporary (timing) differences arise when an income or expense over time is identical for tax and accounting purposes, but its inter-temporal allocation is different. For that reason, the timing differences are said to reverse, so that their aggregate over all periods is zero. Due to the opportunity for reversal, they are a subject to deferred income tax. The main sources of temporary book-tax differences are: impairment of assets, valuation at fair value, provision for warranty repairs, foreign exchange differences from the valuation as at the balance sheet date, provisions for employee benefits, interest accrued but not paid, interest due but not yet received, and unpaid wages, etc. Permanent differences are tax exempt income and non-deductible expenses. The first cover tax-free dividends received from other companies and grants. Other examples of permanent book-tax differential with regards revenue include any non-monetary or partly monetary

performance, including upward adjustments of real estate purchased below its market value or of any interest-free loans or loans received at below-market interest rates.

Figure 1. Reconciliation of the profit before tax and the taxable income



Source: own elaboration

Tax non-deductible expenses contain costs of representation (and private placement advertising until 2006), catering services, donations, penalties, fines, interest for late payment of taxes and social insurance, and others. Permanent differences are items used for computing taxable income which never comes into the calculation of profit before tax or, more typically, items of profit before tax which never come into the calculation of taxable income. Thus, permanent differences do not reverse. Both timing and permanent differences are indicators of a lack of book-tax conformity. Since the latter is a non-reversing item, it affects the book-tax differential only once. In contrast, the timing difference affects the relationship both when it arises initially and when it reverses.

In almost every country, accounting results are the natural starting point for the computation of taxable income. However, the degree of the connection between taxation and financial reporting greatly differs between countries because of the type and the number of adjustments to accounting profit required by tax law (Gavana, Guggiola, and Marenzi, 2013). Besides rule differences in the accounting and tax reporting systems, earnings management and tax avoidance are factors that generate a level of book-tax differences that a firm reports (Hanlon and Heitzman, 2010; Tang and Firth, 2011; Tang and Firth, 2012; Wilson, 2009).

4. HYPOTHESIS DEVELOPMENT

The main inspiration for the first part of the analysis is the study of Blaylock, Gaertner and Shevlin (2017). The major part of the literature on the corporate finance discusses the impact of corporate taxation on the capital structure (e.g. in the form of the interest or non-interest tax shield). Except for the study of Blaylock et al. (2017) which focuses on the aspect of how the book-tax conformity impact the decision of enterprises concerning the selection between financing with share capital or debt. The results from the study indicate that the increase in the book-tax conformity unintentionally results in the increase in the share of debt in the capital structure of enterprises in United States.

Our research concentrates on the impact of link between tax law and the accounting system (measured by book-tax conformity) on the bank debt financing maturity of Polish private firms whose shareholders take a more active role in management, reducing their reliance on financial statements for monitoring managers. Private firms are typically more closely held and their shareholder turnover is lower. The financial reporting of private companies is more likely to be influenced by income tax law. Relative to public companies, the demand for financial reporting in private firms arises less from reducing information asymmetry between managers and other stakeholders (lenders, shareholders, suppliers, and customers) and more from tax, dividend, and compensation payment policies (Ball and Shivakumar, 2005). The influence of tax policy on private firm financial reporting would arise from

the lower benefit, relative to cost, of keeping separate tax and financial reporting records. The demand for higher quality in public-company financial statements is reflected in the greater legal obligations of managers and auditors to recognise economic losses in a more timely fashion, and in the litigation costs of failing to do so. Managers and auditors of private firms implicitly or explicitly contract for a lower level of financial reporting quality, and face lower litigation costs in supplying it.

According to the literature (Garcia-Teruel et al., 2010), accounting quality is valued and taken into consideration during the evaluation of borrower's risk. Lenders who are more flexible in terms of loan agreements impose stricter covenants on enterprises with lower accounting quality, in order to compensate for the informational risk. Therefore, the positive relationship between the accounting quality and the bank debt maturity is expected, since the reduction of informational risk perceived by lenders leads to the more precise evaluation of future cash flows. Lenders, especially banks, impose stricter covenants in order to monitor borrowers with lower accounting quality and, at the same time, compensate for the higher risk related with those enterprises. Bushman and Smith (2001) provide other arguments, related with the information asymmetry, which support the positive relationship between the accounting quality and bank debt maturity: higher accounting quality leads to better monitoring of managers and to identification of project's quality, which as a consequence increases the effectiveness of investment and reduces the expropriation of investors. This fosters lenders who impose less strict covenants in such situation. Moreover, from the lender's point of view, since the higher accounting quality reduces the information asymmetry between managers and owners and facilitates better monitoring, the demand for the monitor of management would be smaller in the case of short-term debt. Because Polish enterprises have limited opportunities to obtain the long-term debt from outside the banks, and banks have a better access to information about borrowers (which they are able to monitor through relationship banking) than holders of corporate bonds (or other debt providers), banks are more motivated to adjust the loan covenants dependent on the accounting quality of borrowers. So, we hypothesize that firms are likely to respond to information loss resulting from increased conformity by using more long-term debt in their capital structure. The relationship both between the maturity of bank debt and accrual adjustments, and between the maturity of bank debt and book-tax conformity is expected to be negative. Thus, we state the following hypothesis:

H1: *Enterprises with higher accounting quality (lower discretional accruals) obtain finance with higher maturity of the bank debt.*

Most studies have assumed that tax regulation influence accounting income reduces accounting quality (Ali and Hwang, 2000; Hanlon, Maydew, and Shevlin, 2008). Atwood *et al.*(2010) suggest that low book-tax conformity gives management the flexibility to signal important information. Kvaal and Nobes (2012) agree with the view of the majority of researchers that the cost of tax influence on accounting income reduces the information content of financial reporting, outweighing the benefit of reduced earnings management. However, low book-tax conformity is associated with higher accounting quality because it is caused when managers are forced to provide the sort of financial reporting numbers (e.g. fair values for marketable securities, impairments of assets, and recognized lease liabilities) which are more informative than the numbers used for tax purposes. Since shareholders are engaged in management, the agent-principal problem is limited. Then, the role of accounting is limited as well. Simply, the person who is in charge knows what is necessary for him.

Most of these measurements are ignored for tax purposes, which was also noticed by Gee, Haller and Nobes (2010). It is resulted in a lack of book-tax conformity when firms chose such an accounting policy. To the extent that measures of book-tax conformity detect how much tax influence on accounting income, the higher book-tax conformity is evidence of the lower accounting quality and lower earnings informativeness. Hanlon *et al.* (2008) find that financial-statement-based estimates of taxable income in the U.S. are about 50% less informative to equity investors than book income conforming book income to taxable income. Blaylock *et al.* (2017) argue that the decrease in earnings informativeness impacts debt holders less than equity holders because of the differences in payoff structures between debt and equity investments. These researchers exploited a natural experiment in the U.S. and found that firms facing an increase in required book-tax conformity (by

an enactment of the Tax Reform Act of 1986) increase leverage relative to other firms by 6.4%, and the cost of equity capital increased by 1.1%. These findings are consistent with increases in book-tax conformity increasing firms' cost of equity relative to debt capital and firms subsequently substituting away from equity and towards debt financing. Thus, we can expect:

H2: *Enterprises with higher accounting quality (lower book-tax conformity (this is higher book-tax differential)) obtain finance with higher maturity of the bank debt.*

5. RESEARCH DESIGN

We used data retrieved from the Bisnode database of financial statements of 30,000 private non-financial limited liability companies and joint-stock companies that operate in Poland in the period of 2003–2013. Table 1 lists a complete description of variables used in the panel analysis of the impact of book-tax conformity measured with lower book-tax differences on the bank debt maturity. Before conducting the panel analysis, descriptive statistics of variables were determined and the correlation between explanatory variables was estimated. Detailed outcomes, not tabulated here, are available on request.

Table 1. Definitions of variables

Variable	Definition of variable
explained variable	
maturity_bank	calculated as long-term bank loans / (long-term bank loans + short-term bank loans)
explanatory variables	
permbtd	the absolute values of permanent book-tax difference of firm *i* in year *t* scaled by total assets calculated as: $permbtd_{i,t} = ptbi_{i,t} - (taxation_{i,t} / tax\ rate_t)$ We apply the research approach proposed by Watrin, Ebert, Thomsen (2014). A higher book-tax difference (*permbtd*) indicates lower book-tax conformity. A lower book-tax difference (*permbtd*) indicates higher book-tax conformity.
ptbi	the value of pre-tax book income of firm *i* in year *t* scaled by total assets
taxation	total taxation (current and deferred) of firm *i* in year *t* scaled by total assets
tax rate	corporate income tax rate in year *t* equal to 19% for 2004-2014, 27% in 2003
btd	the absolute values of temporary and permanent book-tax difference of firm *i* in year *t* scaled by total assets, calculated as: $btd_{i,t} = ptbi_{i,t} - (taxation_{i,t} - deftax_{i,t})/ tax\ rate_t$, where $deftax_{i,t}=((deferred\ tax\ liabilities_{i,t} - deferred\ tax\ assets_{i,t}) / tax_rate_t)$
DAC	discretionary accruals specified in the Jones model
cash flow	cash flow from operations / total assets
cash	cash holdings / total assets
leverage	leverage of firm *i* in year *t* calculated as the sum of liabilities divided by total equity
size	size of firm *i* in year *t* calculated as the natural logarithm of the firm's total assets
tangibility	tangible assets / total assets
etr	effective tax rate, etr = taxation/gross_profit. We replace etr=0 if etr<0 and etr=1 if etr>1
profitability (roa)	return on assets, roa = gross profit / total assets
growth (△ sales)	sales of firm *i* in year *t* / total assets - sales of firm *i* in year *t-1* / total assets in year *t-1*
liquidity	liquidity = (current assets – inventory) / current liabilities
noint_taxshield	non-interest taxshield = depreciation and amortization / total assets
audit	dummy variable of firm *i* in year *t* equals to 1 if a company was audited in a year *t*, and 0 - otherwise
profits	dummy variable of firm *i* in year *t* equals to 1 if a company gained positive (gross profit > 0) in a year *t*, and 0 - otherwise

Source: own elaboration

To mitigate the influence of outliers, we truncated all continuous variables at the 1st and 99th percentiles. After these procedures, and as an inclusion in our analyses only companies indebted to bank, and explanatory variables based on changes in data from the financial statements between the two subsequent years, our research sample was limited to 38,842 firm-year observation of 11,509 private companies spanning 2003 to 2013. Before conducting the panel analysis, descriptive statistics of variables were determined (available on request) and the correlation between explanatory variables was estimated. In the study, we use a within estimator for fixed effects regressions of unbalanced panels whose observations are unequally spaced over time. The Hausman specification test fixed versus random effects – indicates that we should choose the fixed effect estimator. The Wooldridge test for autocorrelation in panel data confirms that there is a problem with first-order autocorrelation AR(1), whereas White's test for homoscedasticity indicates the heteroscedasticity in the panel data. Finally, after the diagnosis of the models, we evaluated them by using a two-step correlation estimation with the Theil fixed effects estimator adjusted for AR(1) disturbances. This approach implements methods found in Baltagi and Wu (1999) that accommodate a variety of patterns of missing data and serially correlated errors of the AR(1) type. This is a form of the generalized least squares (GLS) estimation method that applies a transformation of the data that removes the AR(1) component. This way we receive a two-step efficient estimator.

In this study we apply two measures of book-tax conformity as dependent variables. The first measurement $\boldsymbol{permbtd_{i,t}}$ was introduced by Watrin et al. (2014) and is based on the absolute values of book-tax difference of firm *i* in year *t*, scaled by total assets, calculated as: $\boldsymbol{permbtd_{i,t} = ptbi_{i,t} - (taxation_{i,t} / tax\ rate_t)}$, where $ptbi_{i,t}$ - the value of pre-tax book income of firm *i* in year *t*; $taxation_{i,t}$ covers current and deferred income tax[2] of firm *i* in year *t*; and the tax rate is the nominal corporate income tax rate in year *t* equals to 19% for 2004-2014 and 27% in 2003. As the second dependent variable, we apply an alternative approach to measuring book-tax conformity ($\boldsymbol{btd_{i,t}}$), proposed by Tang (2015), which captures permanent and temporary book-tax differences of firm *i* in year *t* scaled by total assets. This is calculated as: $\boldsymbol{btd_{i,t} = ptbi_{i,t} - (taxation_{i,t} - deftax_{i,t}) / tax\ rate_t}$, where $deftax_{i,t}$= (deferred tax $liabilities_{i,t}$ - deferred tax $assets_{i,t}$) / tax_rate_t (the other variables are the same as above). Both the $\boldsymbol{permbtd_{i,t}}$ and the $\boldsymbol{btd_{i,t}}$ variable indicate that the higher book-tax differential, the lower the book-tax conformity, and the lower the book-tax differential, the higher the book-tax conformity. In the opinion of Tang (2015), Watrin et al. (2014) overlook the fact that permanent book-tax differences can also be driven by earnings management (EM) and tax avoidance (Hanlon and Heitzman, 2010; Tang and Firth, 2011; Tang and Firth, 2012; Wilson, 2009). So, the extent of conformity should be captured by both permanent and temporary book-tax differences. The measure used in the study for approximating the accounting quality (quality of information from financial reporting) is (lower) book-tax conformity (a difference between the financial result and the taxable income) and (lower) discretionary accruals (DAC) specified in the Jones model.

The Jones model (1991) is used for the purpose of estimating discretionary accruals, i.e. not explained by fundamental measures of economic and financial effectiveness of an enterprise, in order to identify the quality of private company's (not listed on a stock exchange) profits. The impact of financing with bank credit on the conditional conservatism is estimated, while modifying Basu model (1997) of piecewise-linear regression of transitory components of gains and losses in financial result, through including the interaction between the binary variable identifying a positive debt due to the bank credit. The model adapts the methodological approach of Dechow et al. (1998) in order to take into account for unrealised gains and losses reported by the company via accruals. Using the Ordinary Least Squares methodology with Newey-West standard errors enabled to deal with the problem of heteroscedasticity and autocorrelation in error-terms structure and examining the impact of financing with bank loan on the asymmetry in accruals, in modified equation of piecewise-linear regression of dependencies between *cash flow* and accruals.

[2] Until 2015, art. 37 of the Polish Accounting Act required companies subject to mandatory audit of their financial reports by a chartered accountant to record the deferred tax. 2002 was the only period when recording deferred tax was mandatory for all companies keeping accounting books.

$$\frac{TA_{i,t}}{A_{i,t-1}} = \beta_{1i}\frac{1}{A_{i,t-1}} + \beta_{2i}\frac{\Delta REV_{i,t}}{A_{i,t-1}} + \beta_{3i}\frac{PPE_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t}$$

where:
$TA_{i,t}$ – firm's *i* total accruals at time *t*, where:
$TA_{i,t}$ = Δcurrent assets – Δcash holdings – Δshort-term liabilities – depreciation
$A_{i,t-1}$ = firm's *i* total assets at time *t-1*
$\Delta REV_{i,t}$ – change of firm's *i* revenue from sales at time *t,* in relation to revenue from sales at time *t-1*, $PPE_{i,t}$ – firm's *i* property, plant, and equipment at time *t*.

The problem is particularly important from the point of view of Polish economy, since small enterprises who are able to use accounting simplifications constitute for more than 98% of the corporate sector. As a result of using accounting simplifications[3] and the strong impact of tax law on the financial result, the financial information of small enterprises lose their quality, which hinders the reliable analysis of borrower's creditworthiness, and as a consequence limits their access to bank loan.

6. RESULTS

Table 2 contains the results from the estimation of the model of bank loan maturity and measures of book-tax conformity proposed by Watrin et al. (2014) and Tang (2015).

The results from the analysis indicate that discretionary accruals have a significant ($p < 0.01$) and negative impact on the maturity of bank debt. This means that enterprises with higher discretionary accruals (lower accounting quality) have a shorter maturity of bank debt than enterprises with higher accounting quality. Therefore, the result confirms that enterprises with higher quality of accruals may obtain a longer maturity of bank debt, which is in line with **hypothesis H1** stating that the quality of accounting reduces the information asymmetry and the problem of adverse selection. However, in contrary to our assumption in H2, enterprises with higher book-tax differential gained financing for a shorter period. It could be caused by banks' trust in borrower's taxable income, more than in financial result calculated in accordance with accounting and financial reporting standards. Therefore banks could expect higher book-tax conformity that allows to reduce risk of borrowers' earnings management.

We should notice that literature provide evidence that enterprises with lower accounting quality will have greater difficulty in obtaining the long-term financing, since banks prefer shorter periods of lending when the monitoring of a borrowing management is necessary. The results of estimation our model for the book-tax differential interactions with *profits* are in line with the findings of previous research indicating that the quality of accounting improves the effectiveness of investment and reduces the cost of debt. Profitable enterprises with lower book-tax conformity, for both variables *permbtd* and *btd*, exhibit the higher maturity of bank debt which implies that lenders expect the higher quality of financial information, resulting from the lower book-tax conformity. Due to delivering more information to creditors, profitable enterprises obtain financing for longer periods (positive coefficients at the interaction between variables *permbtd* and *profits*, or between *btd* and *profits*). This enables to positively verify the **hypothesis H2** only for profitable enterprises.

Larger companies and those who have a higher tangibility obtain the financing for longer periods, due to the lower risk of bankruptcy (at least partly thanks to a higher collateral). Enterprises less vulnerable to the access of external finance (that have higher financial flexibility thanks to higher *cash flow*) use funding for shorter term. Higher liquidity enables borrowers to obtain funding for a longer period. Moreover, our results indicate the positive relationship between the effective tax rate

[3] Partnerships who are able to use the exemption from keeping the accounting books constitute for more than 90% of corporate sector in Poland.

and the bank loan maturity, implying the relatively lower opportunity to reduce tax burdens (and an effective tax rate) due to the usage of interest tax shield. The positive relationship between growth opportunity and the length of financing period indicates that more risky enterprises prefer to use funding for longer periods to secure benefits from increase in their sale thanks to growth opportunity. Similarly, more indebted firms prefer long-term financing rather than short-term, in order to control the risk. The results indicate the substitutability of a non-interest tax shield and tax benefits from debt.

Table 2. Results from the analysis of determinants of the bank credit maturity

	maturity_bank	**maturity_bank**
DAC	-0,0613***	-0,0599***
	(0,0065)	(0,0065)
permbtd	-0,0721***	
	(0,0074)	
profits x permbtd	0,0587***	
	(0,0225)	
btd		-0,0638***
		(0,0070)
profits x btd		0,0583***
		(0,0204)
audit	-0,0103	-0,0096
	(0,0072)	(0,0072)
size	0,0181	0,0181***
	(0,0027)	(0,0027)
tangibility	0,2079***	0,2083***
	(0,0128)	(0,0128)
profitability (roa)	-0,0010	-0,0009
	(0,0006)	(0,0006)
cash flow	-0,1331***	-0,1308***
	(0,0058)	(0,0057)
liquidity	0,0053***	0,0053***
	(0,0005)	(0,0005)
cash	0,1211***	0,1194***
	(0,0213)	(0,0213)
noint_taxshield	-0,3358***	-0,3430***
	(0,0510)	(0,0510)
growth	0,0084***	0,0083***
	(0,0023)	(0,0023)
etr	0,0139*	0,0139*
	(0,0086)	(0,0086)
leverage	0,0821***	0,0796***
	(0,0079)	(0,0079)
_cons	0,0066	0,0067
	(0,0387)	(0,0388)
Number of obs	38,842	38,842
Number of groups	11,509	11,509
R2	0,0829	0,0826
Test F	74,06***	73,11***
F test that all u_i=0	5,78***	5,78***

*Significant at 1% - ***, 5% - **, 10% - *, standard errors in parentheses below coefficients.*

Source: own calculation in STATA ver. 15

7. CONCLUSIONS

Using data from Polish private limited liability companies and non-public joint-stock companies for the years 2003–2013, we investigated the impact of book-tax conformity on maturity of the bank debt. We studied the impact of the book-tax conformity measured by the gap between accounting income and taxable income. Besides the book-tax differences measurement proposed by Watrin et al. (2014), we applied Tang's (2015) approach to estimate book-tax conformity that captures permanent and temporary book-tax differences.

We found that due to delivering higher quality financial information to lenders, firms obtain bank loans for a longer period. While in the case of book-tax conformity, our findings reveal that companies with higher book-tax conformity (lower permanent and temporary book-tax differences) are indebted to a bank for a longer period. Lender demand for information increases the book-tax conformity overall, while less in the case of profitable borrowers.

As literature so far indicate that the accounting system gives a better perception of enterprise's situation than the registration system for tax purposes. Next, during the loan agreement, after the loan is granted, banks require reliable and timely measures of financial performance to monitor existing debt and capital investments, resulting in changes in financial reporting. Therefore, banks should rather enforce keeping accounts and recognition of deferred tax, if they believe that such system is the best in terms of the spectrum of provided information. We received opposite results than predicted on the basis on literature review (Beck and Demirguc-Kunt, 2006; Armstrong et al., 2010; Chua et al., 2011; Coluzzi et al., 2012). Outcomes of our study indicate the negative relations of maturity of bank debt with the book-tax differential, this is positive association between dependent variable and the book-tax conformity. This means that, in Poland, private companies practicing bookkeeping could improve their access to long-term bank loans by increasing book-tax conformity. One of the reasons why banks tend to grant loans to companies with higher book-tax conformity, is their greater trust to the taxable results reported to the Tax Office. This could be caused by the higher efficiency of criminal and tax authorities, and higher penalties for avoiding taxes or/and manipulations of tax reporting using earnings management. This way we contribute to the literature by answering on request of Hope and Vyas (2017) to extend the knowledge about the impact of accounting quality on access to finance of private enterprises. We have done it through studying effects of lower accounting quality (because of higher book-tax conformity) on private firms' access to finance (in particular long-term bank loans). Our findings contribute to recent research on the relationship between book-tax conformity and corporate capital structure (Blaylock et al., 2017). Our research outcomes are relevant for the ongoing discussion on the advantages of book-tax conformity, which include dampening earnings management, and causing a decrease in the use of corporate tax shelters and other tax avoidance activities (Chan, Lin and Mo, 2010). Moreover, we conduct our research on a basis of a novel wide dataset of 30,000 private limited liability companies and non-public joint-stock companies in Poland, including 11,509 borrowers. We focus on Poland case as a country with the lowest private non-financial corporate debt-to-GDP ratio (46%), and the lowest share of companies do bookkeeping (10%) in the European Union. The latter is caused mainly by the largest share of partnerships in the business sector (90%) and the highest limit of annual revenues (2 mln EUR) in the EU that allows partnerships not to conduct accounts nor prepare financial statements.

To conclude, we see several areas for improving accounting practices in the Polish market. Firstly, lowering the threshold for the mandatory keeping of accounts should increase the number of enterprises carrying out bookkeeping. However, we should take into account high costs related with bookkeeping and preparing financial statements, that could be too high for micro and small enterprises. This factor is missing by our research and most empirical studies.

BIBLIOGRAPHY

Ali A., Hwang L. (2000). Country-specific factors related to financial reporting and the value relevance of accounting data, Journal of Accounting Research, 38(1), pg. 1–21.

Armstrong Ch.S., Guay W.R., Weber J.P. (2010). The role of information and financial reporting in corporate governance and debt contracting, Journal of Accounting and Economics, 50(2–3), pg. 179–234.

Atwood T.J., Drake M.S., Myers L.A.(2010). Book-tax conformity, earnings persistence and the association between earnings and future cash flows, Journal of Accounting and Economics, 50(1), pg. 111–125.

Balcerowicz E., Balcerowicz L., Hashi I. (eds.) (1998). Barriers to Entry and Growth of Private Companies in Poland, the Czech Republic, Hungary, Albania and Lithuania, CASE Working Paper no. 14.

Ball R., Shivakumar L. (2005). Earnings quality in UK private firms: comparative loss recognition timeliness, Journal of Accounting and Economics, 39(1), pg. 83–128.

Baltagi B.H., Wu, P.X. (1999). Unequally spaced panel data regressions with AR(1) disturbances, Econometric Theory, 15, pg. 814–823.

Basu S. (1997). The conservatism principle and the asymmetric timeliness of earnings, Journal of Accounting and Economics, 24(1), pg. 3–37.

Beck T., Demirguc-Kunt A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint, Journal of Banking and Finance, 30(11), pg. 2931–2943.

Białek-Jaworska A. (2016). Book-tax conformity in Polish private companies, Zeszyty Teoretyczne Rachunkowości, 90(146), pg. 65–86.

Białek-Jaworska A., Nehrebecka N. (2014). Rola kredytu bankowego w finansowaniu przedsiębiorstw w Polsce w latach 1995-2011, Nauki o Finansach, 3(20), pg. 61–101.

Blaylock B., Gaertner F., Shevlin T. (2017). Book-tax Conformity and Capital Structure, Review of Accounting Studies, 22(2), pg. 903–32.

Bushman R. M., Smith A. J. (2001). Financial accounting information and corporate governance, Journal of Accounting and Economics, 32(1-3), pg. 237–333.

Chan K., Lin K., Mo P. (2010). Will a departure from tax-based accounting encourage tax noncompliance? Archival evidence from a transition economy, Journal of Accounting and Economics, 50, pg. 58–73.

Chua J.H., Chrisman J.J., Kellermanns F., Wu Z. (2011). Family involvement and new venture debt financing, Journal of Business Venturing, 26(4), pg. 472–488.

Coluzzi C., Ferrando A., Martinez-Carrascal C. (2012). Financing obstacles and growth: An analysis for Euro Area non-financial firms, European Journal of Finance, 18(3), pg. 1–18.

Corporate Income Tax Act of 15 February 1992 (2017). Journal of Laws, points 2343, 2175, 2201 and 2369.

Dechow P. M., Kothari S. P., Watts R. L. (1998). The relation between earnings and cash flows, Journal of Accounting and Economics, 25, pg. 133–168.

Dobbs R., Lund S., Woetzel J., Mutafchieva M. (2015). Debt and (not much) deleveraging, McKinsey Global Institute.

Easton P., Monahan S., Vasvari F. (2009). Initial evidence on the role of accounting earnings in the bond market, Journal of Accounting Research, 47(3), pg. 721–766.

García-Teruel P. J., Martínez-Solano P., Sánchez-Ballesta J. P. (2010). Accruals Quality and Debt Maturity Structure, Abacus, 46(2), pg. 188–210.

Gavana G., Guggiola G., Marenzi A. (2013). Evolving Connections Between Tax and Financial Reporting in Italy, Accounting in Europe, 10(1), pg. 43–70.

Gee M., Haller A., Nobes C. (2010). The influence of tax on IFRS consolidated statements: the convergence of Germany and the UK, Accounting in Europe, 7(1), pg. 97–122.

Gomułka S. (1993). The Financial Situation of Polish Enterprises 1992–93 and its Impact on Monetary and Fiscal Policies, CASE, Warsaw.

GUS (2015). Działalność przedsiębiorstw niefinansowych w 2013 r., Central Statistical Office, Warszawa.

Hanlon M., Heitzman S. (2010). A Review of tax research, Journal of Accounting and Economics, 50(2–3), pg. 127–178.

Hanlon M., Maydew E.L., Shevlin T. (2008). An unintended consequence of book-tax conformity: A loss of earnings informativeness, Journal of Accounting and Economics, 46(2/3), pg. 294–311.

Hanlon M., Laplante S.K., Shevlin T. (2005). Evidence for the possible information loss of conforming book income and taxable income, Journal of Law and Economics, 48(2), pg. 407–442.

Hope O. K., Vyas D. (2017). Private company finance and financial reporting, Accounting and Business Research, 47(5), pg. 506–537.

Hussain A. (1994). Private Sector Development in Economies in Transition, Journal of Comparative Economics, 19(2), pg. 260–271.

Jones, J. (1991). Earnings Management during Import Relief Investigations, Journal of Accounting Research, 29, pg. 193–228.

Kozarzewski P., Radziwiłł A., Walewski M. (2004). Country Paper: Poland, International Policy Conference on Transition Economies, Hanoi, Vietnam, 31 May-1 June, UNDP, from archival materials of CASE, Warsaw.

Kvaal E., Nobes Ch. (2012). On the definition and measurement of book-tax conformity. Working Paper, University of London.

Nowak W.A. (2015). The evolution of governmental accounting in the phases of a State regime reshaping from capitalism to socialism and from socialism to capitalism: the case of Poland in the 1950s – mid-1990s, Zeszyty Teoretyczne Rachunkowości, 84(140), 159–180.

Piosik A. (red. nauk.) (2013). Kształtowanie zysków podmiotów sprawozdawczych w Polsce: MSR / MSSF a ustawa o rachunkowości, Wydawnictwo C.H. Beck, Warszawa.

Plummer E., Tse S. (1999). The effect of limited liability on the informativeness of earnings: Evidence from the stock and bond markets, Contemporary Accounting Research, 16(3), pp. 541–574.

Rajan R.G., Zingales L. (1995). What do we know about capital structure? Some evidence from international data, The Journal of Finance, 50(5), pp. 1421–1460.

Tang T., Firth M. (2011). Can book-tax differences capture earnings management and tax management? Empirical evidence from China, The International Journal of Accounting, 46(2), pp. 175–204.

Tang T., Firth M. (2012). Earnings persistence and stock market reaction to the different information in book-tax differences: Evidence from China, The International Journal of Accounting, 47(3), pp. 369–397.

Tang T. (2015). Does Book-Tax Conformity Deter Opportunistic Book and Tax Reporting? An International Analysis, European Accounting Review, 24(3), pp. 441–469.

Watrin C., Ebert N., Thomsen M. (2014). Book-Tax Conformity and Earnings Management: Insights from European One- and Two-Book Systems, The Journal of the American Taxation Association, 36(2), pp. 55–89.

Wilson R.J. (2009). An examination of corporate tax shelter participations, The Accounting Review, 84(3), pp. 969–999.

ZBP (2015). Polska i Europa – wyzwania i zagrożenia, Związek Banków Polskich, Warszawa.

Methodology /Interdisciplinary Works

METHODS TO PREVENT FORGERY OF ACCOUNTING DATA

Pavla KOŤÁTKOVÁ STRÁNSKÁ, Josef KOŠŤÁLEK
Czech Technical University in Prague, Czech Republic
pavla.kotatkova.stranska@cvut.cz, josef.kostalek@fs.cvut.cz

Abstract
Accounting data are empirical data and, although it does not seem possible, empirical data is governed by certain laws. These patterns were described by American engineer Frank Benford, so they are called Benford's laws. Benford's laws describe the distribution of numerical frequencies in the first places of empirical data. Our article describes a model that uses Benford´s laws, statistical methods, different ways of selecting and evaluating data. Where the resulting output is the answer to the question of whether there is a consistency between the accounting data examined and Benford's laws. If accounting data is significantly different from Benford's laws, there is a suspicion that these data are not empirical. Data has been edited.
This area of scientific research will find application in the control of accounting, election results, corporate statements, measured values, etc.

Keywords: A*ccounting data, Benford's laws, Detection of data adulteration, Statistical methods*

1. INTRODUCTION

The empirical data of various kinds have sometimes in a totally chaotic way, but they still show a certain order. Specifically, these are regularities in the number of digits at the beginning. This finding was discovered by American astronomer Simon Newcomb in 1881. This discovery did not find any application and fell into oblivion. In 1938, Frank Benford rediscovers it. Today he has a great deal of importance in controlling data of all kinds, especially for controlling accounting data (Crilly, 2010). Empirical data is governed by the Benford's laws, which has been proven many times (Cho, 2017; Watrin, 2008; Nigrini, 2012; Nigrini, 2017; Clippe-Ausloos, 2012; Shi, et al., 2018). The invalidation of the law shows the manipulation of these data and indicates a probable falsification in the accounting.

This article aims to use a mathematical-statistical method to compile a Benford-based model capable of identifying unauthorized interventions into real data (e.g. account data). To validate the model's functionality and achieve the goal will be done on a real medium-sized business and its accounting data (balance sheet and profit and loss account) for 2016 are selected. The authenticity of the accounting data will be verified in three ways: verification of all data, verification of data divided into groups data (one group will be included one-hundred of accounting data) and random selection of data. The result of the solution will be to confirm whether data was manipulated at materiality level of 0.05. It will be verified that the accounting data confirms compliance with the Benford distribution. In the case of confirmation of compliance, it can be said that with the probability of 0.95 the Bedford's Act works and the company's accounts did not manipulate the data, even in case of conversion to other currencies.

2. THE PRINCIPLE BENFORD'S LAW

The model uses Benford's law to divide number frequencies in the first place of the numerical data. The probability that the numeric value will begin with digit 1 is not as high as the probability that it will start with a numeral 9. This probability is given in the Table 1 and the Formula 1.

Table 1. Benford's probability distribution of numbers in the first digit

Digit	1	2	3	4	5	6	7	8	9
Probability (%)	30,10	17,61	12,49	9,69	7,92	6,70	5,80	5,11	4,58

Source: Hanzal, 2017

The values are calculated in the Table 1 using the Formula 1 (Hanzal, 2017; Clippe-Ausloos, 2012).

$$P(\%) = \log\left(1 + \frac{1}{d_1}\right) \bullet 100\ \% \qquad (1)$$

where $d_1 \in \{1, 2, 3, \ldots, 8, 9\}$

Beyond the probability of the occurrence of a digit in the first place, the Formula 1 can be extended to the Formula 2, which calculates the probability of occurrence of the first two digits. It calculates the probability that the numeric value starts e.g. 11 or 36.

$$P(\%) = \log\left(1 + \frac{1}{10 \bullet d_1 + d_2}\right) \bullet 100\ \% \qquad (2)$$

where $d_1 \in \{1, 2, 3, \ldots, 8, 9\}$ a $d_2 \in \{1, 2, 3, \ldots, 8, 9\}$

There are similar formulas for determining the probabilities of the first three digits, etc. The differences in probabilities are no longer so great (Nigrini, 2012; Nigrini, 2017; Hill, 1995).

The Formula 3 serves to calculate the probability of the occurrence of a second digit. The likelihood of a second place e.g. number 3 is the sum of probabilities of situations: 13, 23, 33, ... , 83, 93.

$$P(\%) = \sum_{d_1=1}^{9} \log\left(1 + \frac{1}{10 \bullet d_1 + d_2}\right) \bullet 100\ \% \qquad (3)$$

where $d_1 \in \{1, 2, 3, \ldots, 8, 9\}$ a $d_2 \in \{1, 2, 3, \ldots, 8, 9\}$

The use of these laws has its limits. We work with the probability that values need to be as high as possible. Benford's distribution works when the number of the values (data) is least 200 and when the values (data) contain least three digits (Berger, 2011; Durtschi, 2004).

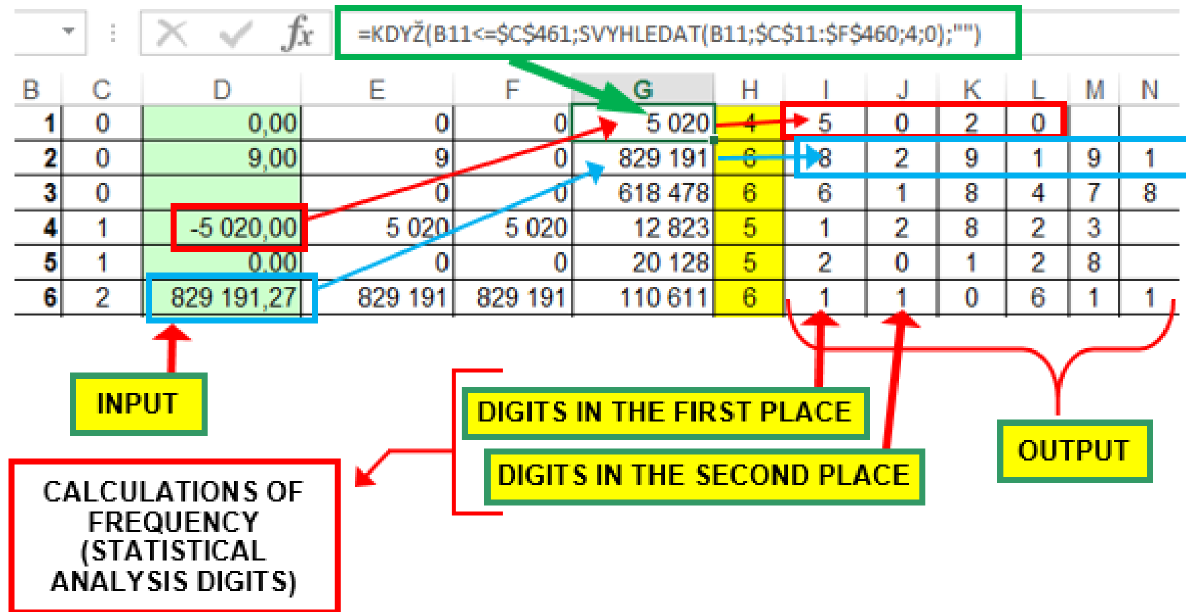
3. THE PRINCIPLE OF OPERATION THIS MODEL

The model was created in MS Excel using mathematical-statistical functions. Next, it is automatically verifying the accuracy of data according to the Bedford's laws. The first digit validates of the frequency, the frequency of the first two digits and the frequency of the second digit.

The Bedford's distribution verified with of statistical tests: $\chi 2$ test and Kolmogorov-Smirnov test in significant level "α", which can specify as a parameter in the model (Nigrini, 2011; Nigrini, 2017).

It is necessary to eliminate incorrect values from the input data. The first step of verification is dividing of digits it into individual digits, in order to calculate the frequency of these digits. If the input entered is a negative number, it is created absolute value. If the specified entry has only one number, it is automatically skip. Decimal places are deleted. (Coman, et al., 2018)

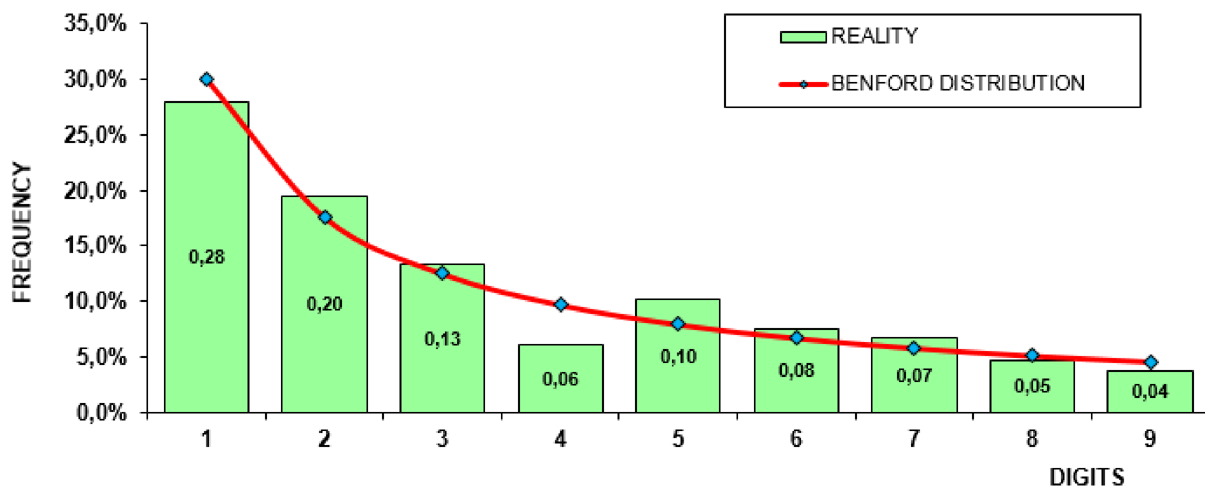
Figure 1. Data filtering



Source: Own elaboration

After the elimination of incorrect values from the input data are calculated the frequency digits. It shows (see Figure 1.) the result of the frequency digits in first place compared with theoretical – Benford´s values (according to the Formula (1)).

Figure 2. Frequency digits on the first place

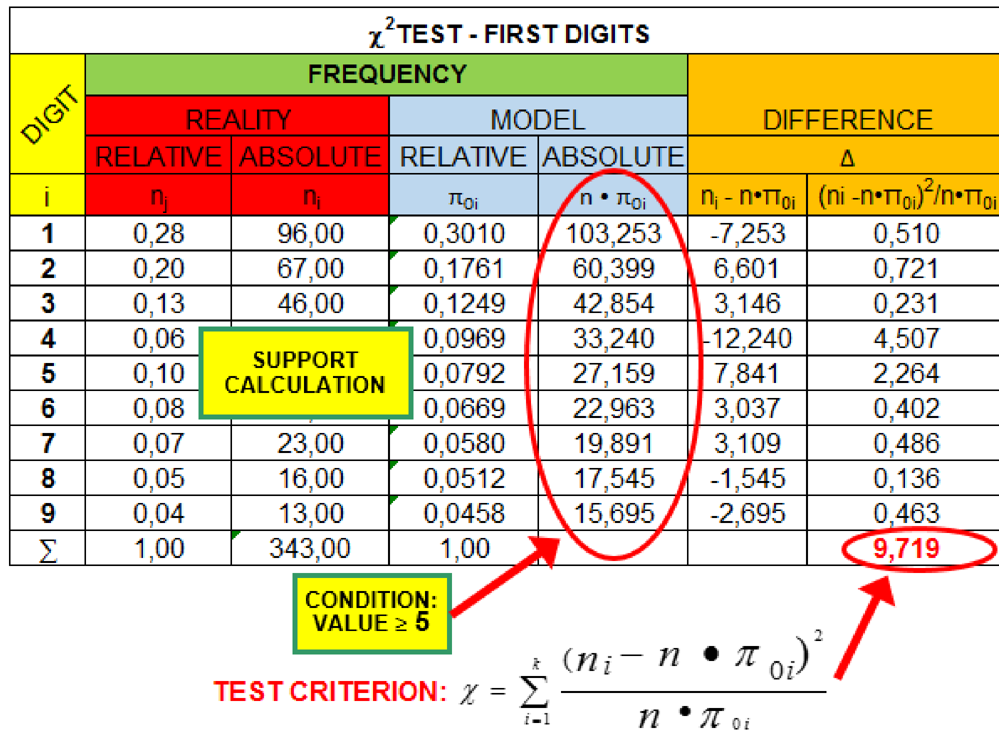


Source: Own

Next, it is necessary statistical tests performed to verify the conformity of the Benford´s frequency distributions with frequency digits of empirical data. It used $\chi 2$ test for testing the first digit. When testing the second digit and the first two digits is used Kolmogorov-Smirnov test, due to the existence of small probability and failure to comply with conditions for $\chi 2$ test (the theoretical frequency must have a minimum value "5"), in (Hill, 1998; Cho, 2007; Nigrini, 2017).

The tests could also do with the frequencies of digits in third and fourth place, etc. This does not count. The first digits have the differences of frequency. These differences are very contrasting, e.g. frequency number 1 is 30.1%, and the frequency of the number 9 is 4.6% (see Table 1 or Figure 2). The additional of digits these contrasts gradually reduced.

Figure 3. Implement the χ^2 test in the model

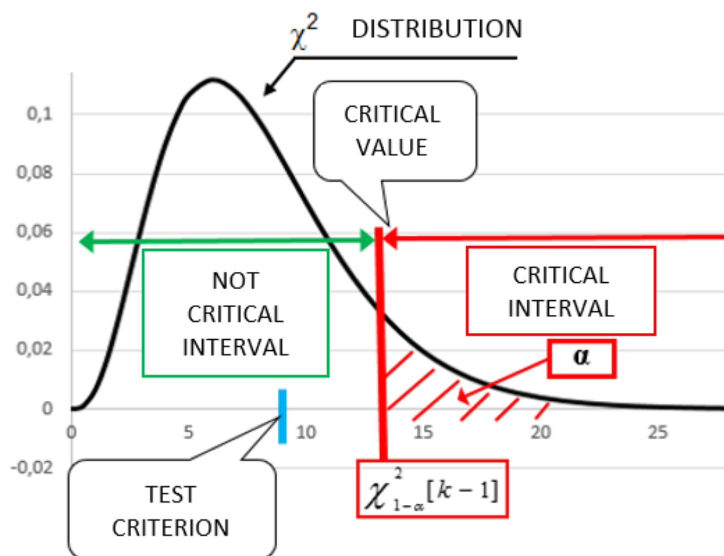


χ^2 TEST - FIRST DIGITS						
DIGIT	FREQUENCY				DIFFERENCE	
	REALITY		MODEL			
	RELATIVE	ABSOLUTE	RELATIVE	ABSOLUTE	Δ	
i	n_i	n_i	π_{0i}	$n \cdot \pi_{0i}$	$n_i - n \cdot \pi_{0i}$	$(n_i - n \cdot \pi_{0i})^2 / n \cdot \pi_{0i}$
1	0,28	96,00	0,3010	103,253	-7,253	0,510
2	0,20	67,00	0,1761	60,399	6,601	0,721
3	0,13	46,00	0,1249	42,854	3,146	0,231
4	0,06		0,0969	33,240	-12,240	4,507
5	0,10		0,0792	27,159	7,841	2,264
6	0,08		0,0669	22,963	3,037	0,402
7	0,07	23,00	0,0580	19,891	3,109	0,486
8	0,05	16,00	0,0512	17,545	-1,545	0,136
9	0,04	13,00	0,0458	15,695	-2,695	0,463
Σ	1,00	343,00	1,00			9,719

Source: Own

If there is a small difference of real numbers and frequency numbers Benford´s breakdown (model), a testing criterion is of small value, i.e. the reality matches the model. If the difference is greater than the critical value, the statistical test does not apply and there is no consensus.
The validity of the test is according to the parameter α (significance level). The normal value is 0.05. The critical value is calculating according to statistical functions CHISQ.INV (see Fig. 3).

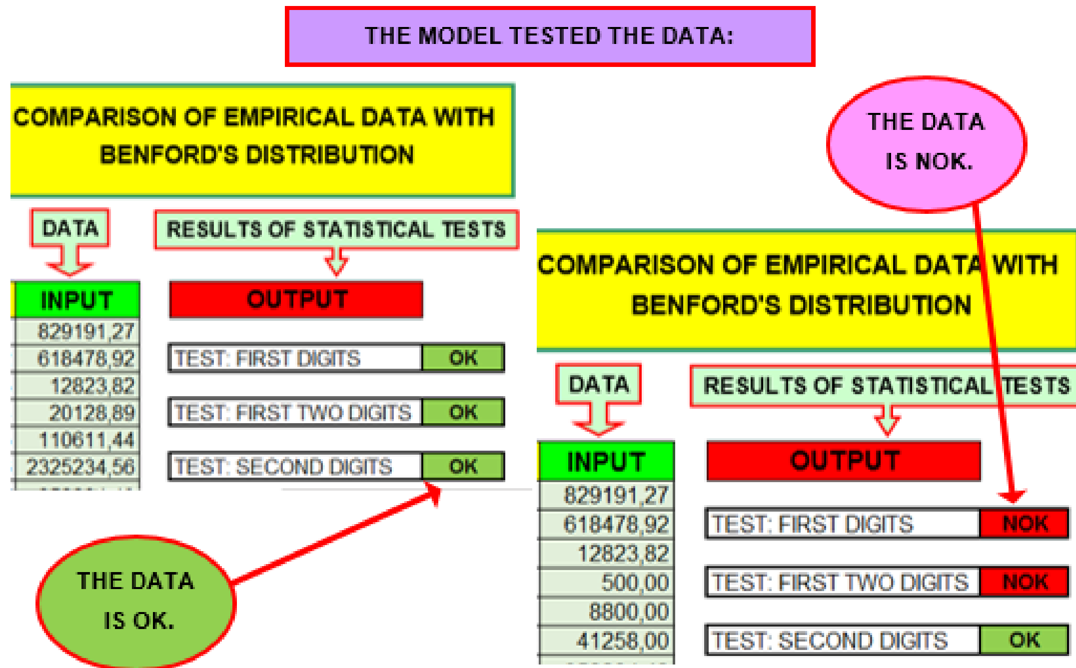
Figure 4. Principle of χ^2 test



Source: Own

The model is designed to keep everything running automatically. The user inserts the data and receives the results (see Figure 5).

Figure 5. Demonstration of model operation



Note: The data is OK means, that the data is real.
The data is NOK means, that the data is suspicious.

Source: Own Elaboration

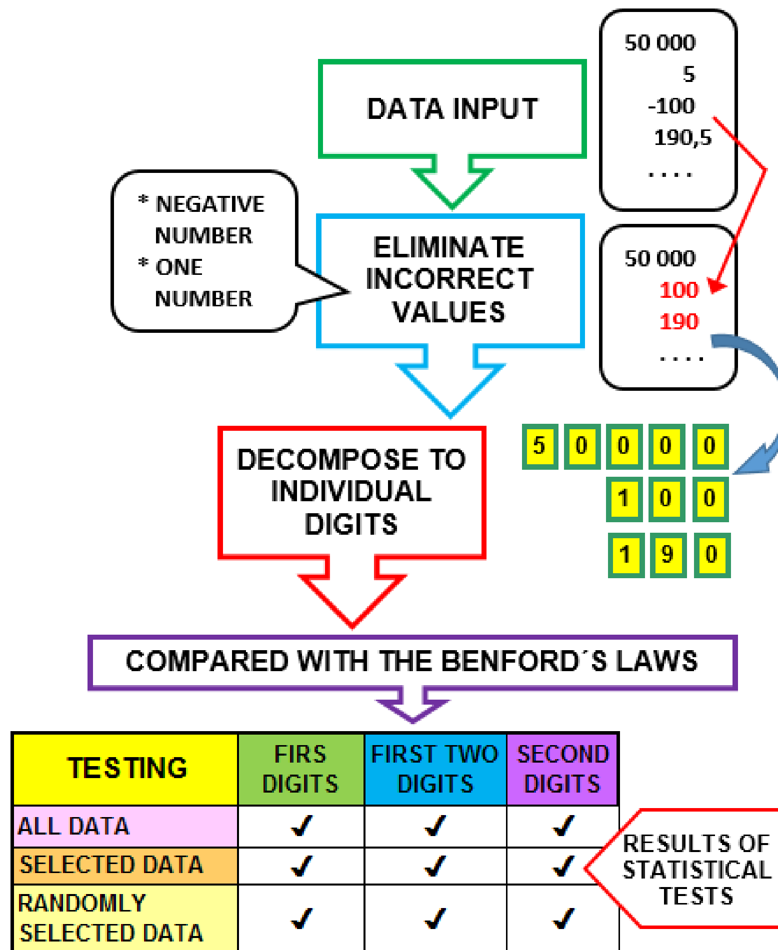
4. RESULTS OF MODEL

The model can decompose the accounting data to individual digits. The frequencies of these digits are compared with the theoretical frequencies of Benford's laws. The resulting differences are evaluated using statistical methods. Everything is set automatically in the model. The user inserts data (e.g. accounting data) into the model and immediately receives the result. The result is whether there is a consistency between the actual frequencies and the predicted frequencies.

If there is no control, the accounting data is suspicious. Suspicious accounting data can be falsified. If we decide verify data, then we use model based on principle Benford´s law and we check the suspects of data in detail.

The problem arises when we test for example 300 accounting data and someone only falsifies 10 accounting data. There are 10 false accounting data and 290 accurate accounting data. The deviation will be too small and the test cannot detect it. Our model reacts in this situation as well. The model uses two ways of solving at the same time. The first way is to select a sample of accounting data that is compared to Benford's laws using statistical tests. The user inserts, for example, 300 account data into the model (the check will be performed as described above), for example, data from 1 to 100 (the interval can be set by the user). The second way is to randomly select the accounting data that will be tested. The user can set how many data will be randomly selected and tested. Random selection can be repeated and randomly selected and tested for other data. 10 false data cannot be identified among 300 correct data but 10 false data between 100 or 50 data can already be identified. Model operation is described in the Figure 6.

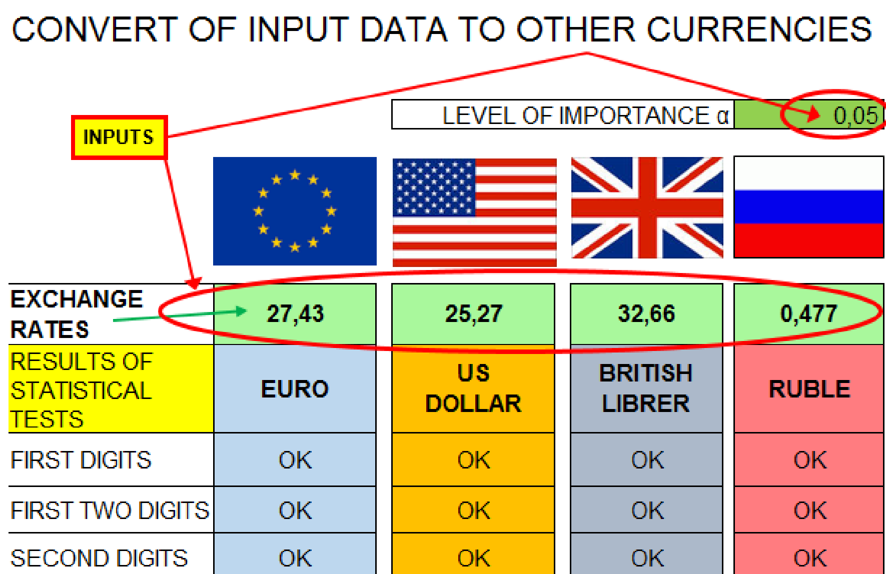
Figure 6. Principle of the model function



Source: Own

Benford frequency distribution has another interesting feature. When empirical values coincide with Benford´s laws and we multiply empirical values by any constant, we will get new values that will again coincide with Benford´s laws. This principle was used in our model to test accounting data in other currencies (see Figure 7).

Figure 7. Convert of input data



Source: Own Elaboration

From the above it shows that the data expressed in various type currencies respect Benford's Law (see Fig. 7).The output is again the test result information “OK”.

5. CONCLUSION

This paper represents the usefulness the Benford's law to ascertain overall data quality. To fulfil the objective was assembled model based on Benford's Law. Then the model was applied on the particular company and its accounting data for the year 2016. The financial data has been verified as the Czech currency and in selected foreign currencies. Counterfeiting is a frequent and negative phenomenon everywhere in the world (Rauch, 2011). Our model employs algorithms to verify the authenticity of empirical data. These algorithms are based on the findings of American physicist – Gregory Benford.

The whole model with these capabilities was created with the help of commonly available MS Excel software. The user does not need expensive SW or special computers, nor does he need special knowledge – just inserts data, and the result of “OK” or “NOK” matches will appear. The assembled model can very quickly and easily verify the accuracy of the data provided with a certain probability. It is a very effective tool for the purposes of financial control and tax collection.

Our model has been improved many times and equipped with new features. In particular, random sampling of samples of the values selected from the whole allows the detection of suspicious data. We have successfully tested this phenomenon several times. We took real accounting data from a real business. All tests showed the accuracy of the data. If a small change in the accounting data (value manipulation) was made, this change was detected by random data verification.

Benford's frequency distribution has been identified as a very interesting activity several times, the validity of which has been proven on many empirical data from various areas. It can be said that this area of scientific research will find its application not only in the control of accounting, but in the control of election results, corporate statements, measured values, wages, etc.

BIBLIOGRAPHY

Berger, A., Hill, P. T. 2011. A Basic Theory of Benford’s Law, Probability Surveys, vol. 8, no. 1., ISSN 1549-5787. DOI: 10.1214/11-PS175 php?id=696&article.

Clippe, P., Ausloos, M. 2012. Benford´s law and Theil transform of financial data, Physica A-Statistical Mechanics and its applications, vol. 391, no. 24: pp. 6556-6567. ISSN 0378-4371. DOI 10.1016/j.physa.2012.07.063.

Coman, D.M., Horga, M.G., Danila, A., Coman M.D. 2018. Using Benford´s law in the analysis of socio-economic data, Journal of science and arts, vol. 1: pp. 167-174. ISSN 1844-9581.

Crilly, T. 2010. Matematika 50 myšlenek, které musíte znát, Slováry, Praha, 203 s., ISBN 978-80-7391-409-7.

Durtschi, C., Hillison, W., Pacini, C. 2004. The effective use of Benford’s law to assist in detecting fraud in accounting data, Journal of Forensic accounting, vol. 5, no. 1: pp.17–34. ISSN 1524-5586.

Hanzal, P. 2017. ARS – Auditing Revision Software v nadnárodních ERP systémech, VŠTE v Českých Budějovicích, http://www.cssi.cz/cssi/ars-auditing-revision-software-v-nadnarodnich-erp-systemech, [cit. 1. 3. 2017, 21:55].

Hill, T. P. 1998. The First Digit Phenomenon, American Scientist, vol. 86, no. 1: pp. 358–363, ISSN 0003-0996.

Hill, T. P. 1995. Base-Invariance Implies Benford’s Law, Proceedings of the American Mathematical Society, vol. 123, no. 3: pp. 887–895, ISSN 0894-0347.

Cho, W. K. T., Gaines, B. J. 2007. Breaking the (Benford) Law: Statistical Fraud Detection in Campaign Finance, The American Statistician, vol. 61, no. 3: pp. 218-223, ISSN 0003-1305. DOI 10.1198/000313007X223496.

Nigrini, M. 2011. Forensic Analytics: Methods and Techniques for Forensic Accounting Investigation, NY: John Wiley&Sons Inc., 352 s. ISBN 978-1-118-08763-3.
Nigrini, M. J. 2012. Benford's law: applications for forensic accounting, auditing, and fraud detection, NY: John Wiley&Sons Inc. 352 s. ISBN 978-1-118-15285-0.
Nigrini, M. J. 2017. Audit Sampling Using Benford´s Law: A Review of the Literature with Some New Perspectives, Journal of Emerging Technologies in Accounting, vol. 14, No. 2: pp. 29-46. ISSN 1554-1908. DOI 10.2308/jeta-51783.
Rauch, B., Göttsche, M., Brähler, G., Engel, S. 2011. Fact and Fiction in EU-Governmental Economic Data, German Economic Review, vol. 12, no. 1: pp. 243–255, ISSN 1468-0475. DOI 10.1111/j.1468-0475.2011.00542.x.
Shi, J., Ausloos, M., Zhu, T. 2018. Benford´s law first significant digit and distribution distances for testing the reliability of financial reports in developing countries, Physica A-Statistical Mechanics and its applications, vol. 492: pp. 878-888. ISSN 0378-4371. DOI 10.1016/j.physa.2017.11.017
Watrin, Ch. 2008. Benford’s Law: An Instrument for Selectin Tax Audit Targets?, Review of Managerial Science, vol. 2, no. 3: pp. 219–237, ISSN 1863-6683. DOI 0.1007/s11846-008-0019-9 1863-6683.

ACCOUNTING IN COMPARISON TO OTHER SCIENTIFIC DISCIPLINES

Konrad STĘPIEŃ
Cracow University of Economics, Poland
stepienk@uek.krakow.pl

Abstract
Accounting is a basic information system of business entities. It is also a key system for measuring the economic values of an entity's business operations.
In addition, accounting is one of the oldest economic sciences. This paper is devoted to presenting accounting attributes as a scientific discipline and showing its links to other disciplines.
The research methods used in this study include literature analysis, the deduction method, the comparative method and the descriptive method.

Keywords: *accounting, scientific discipline, science, interdisciplinarity*

1. INTRODUCTION

Accounting is widely recognized as the primary information system of business entities. It is estimated that about 70% of economic information provided to business entities comes from the accounting system. In addition, accounting is also considered a key system for measuring the economic values of business entities. Accounting enables the valuation of a company's resources and the measurement of the effects of an entities business activities in the form of a financial result[1].

In addition, accounting is one of the oldest economic sciences. It is worth emphasizing this fact because there are individuals who raise questions about accounting being a scientific discipline (Demski, 2007, pp. 153–157; Dobija, 2010, pp. 25–26; Szychta, 2010, pp. 245–266).

The aim of this study is to present the history of the uprising of accounting as a science, and also to indicate the attributes of accounting as a scientific discipline such as: describing economic reality, applying own methodology, studying social relations and the unity of the system. Moreover, this paper is devoted to showing the links between accounting and other scientific disciplines.

The research methods used in this study include literature analysis, the deduction method, the comparative method and the descriptive method.

2. ACCOUNTING AS A SCIENTIFIC DISCIPLINE

Accounting started to be perceived as a scientific discipline in the second half of the 20th century. Previously, accountancy was treated more as a trade, a task or human activity, or a duty to perform. However, it is worth to keep in mind that the theoretical foundations of accounting had been created over many centuries, starting during the ancient period all the way to the early modern period (Bąk, 2013, p. 56).

According to S. Sojak (2011, p. 267), accounting should be regarded as science because it has the attributes of science. Accounting not only describes the economic situation of a given period, but also explains it using appropriate methods such as the subjective method or the balance sheet method.

The subjective method of accounting is based on observations made from the point of view of a particular economic entity. These observations primarily concern the measurement and recording of economic phenomena and the amount of resources of a particular entity. On the other hand, the balance sheet method is the examination of phenomena from two points of view. In accounting, this

[1] Deliberations concerning the measurement of results of managing a business can be found, for example, in the following publications: Maślanka, 2009, pp. 30–36; Stępień, 2012, pp. 381–389.

phenomenon (the subject of observation) are the economic activities and resources required to conduct these activities (Stępień, 2016, p. 95). The balance sheet method reflects the duality in perceiving a business. This in turn – among other things – leads to distinguishing the entity's assets from its sources of financing – the capital (Cf. Dobija, 2014, pp. 46–69). These two economic resources are the same, however they are dealt with in two different ways. As emphasized by E. Burzym (1980, p. 17), the dual way of considering and recording resources and processes in accounting sets the general framework (rules) for the functioning of this system.

M. Bąk (2013, p. 58) has interesting ideas about accounting being a scientific discipline. The author notes that "accounting is a scientific discipline because it is a socially organized activity, investigates relationships and events of social nature, and creates information which after it has been used, has social consequences. Accounting also has its own object and purpose of research and a tremendous amount of scientific achievements".

I. Sobańska (2012, p. 182) emphasizes that "the unity of the system" should be taken into account among the arguments in favor of accounting being treated as a scientific discipline[2]. Despite the existence of many types and variations of accounting, the unity of the accounting system has been preserved due to the uniformity of the form adopted for the differentiation of the system, differentiation influenced by various expectations of the information recipients. It is the basis for emerging theoretical solutions and a starting point for practical application (Bąk, 2013, p. 63).

In the context of the above observations, it is also worth noting that accounting belongs to the so-called applied sciences; applied – because of its goal orientation and a science – because of its methodology (Jarugowa, 1991, p. 12–13; Babuśka, 2013, p. 25). As applied science, accounting combines three interrelated elements i.e. (Table 1): accounting theory – accounting policy – accounting practice. According to W. Brzezin (1998, pp. 22–25; 2000, pp. 35–37), the author of this three-element accounting model, each of these elements is important for accounting as a science. The theory of accounting is especially important.

It should be noted that in the long history of accounting, there had been stages during which accounting practice dominated over accounting theory. New trends in accounting theory often started as a result of the needs of accounting practice, and these, in turn, resulted from the ever-changing reality. It should be stressed, however, that there were opposite situations when accounting theory was ahead of practice. 3-element accounting model of Y. Ijiri (1982; 1986) can serve as an example of great achievement of accounting theory. This author has developed the concept of a three-dimensional entry accounting system, in which he distinguished the resource account, momentum accounting and force accounting (Burzym, Dobija, 1989; Dobija, 1988; Dobija, 1990).

The core of accounting science is its theories, and these can be classified in different ways depending on the classification criterion used. For example, depending on the way of reasoning, deductive theories and inductive theories can be distinguished, while normative theories and positive theories are formulated for the purposes of research (Bąk, 2013, p. 64).

In general, normative (valuative) theories answer the question “how should it be?” They contain evaluation standards and are the result of deductive research. On the other hand, positive theories refer to the description and explanation of facts and processes that occur in practice. They answer the question “how is it and why is it?”. Empirical (inductive) research is used in their creation to hypothesize and verify them based on questionnaires, interviews and case studies. Positive theories allow one to understand the consequences of one’s choices in accounting policy and practice.

[2] The term “system” was introduced into social sciences, including the theory of accounting in the 70s of the last century resulting from the development of general theory of systems. In the systems theory there are two methodological concepts of explaining real systems, which are internal and external. The internal description is structured (defining the system, identifying its identity), and the external description is functional (system relations with the environment, the surroundings). In the 1990s, entities steered away from the accounting system corresponding to the structural description replacing it with functional description. In the above context, it can therefore be stated that the concept of functional description accounting system has been used to distinguish financial accounting and management accounting within the functional accounting framework, and therefore there is a scientific explanation for this type of division. Cf. Sobańska, 2012, pp. 180–181, 186; Bąk, 2013, p. 63.

Table 1. Three-element model of accounting theory, policy and practice

Accounting theory	Accounting policy	Accounting practice
According to Webster's dictionary (1961, p. 2371; Hendriksen, van Breda 2002, p. 43), the accounting theory can be described as “a coherent, consistent and internally logical set of hypothetical, conceptual, and pragmatic principles that form the general reference framework for accounting research”.	It is defined as: 1. The whole sphere of accounting standardization through various legal regulations, standards, directives (e.g. The Accounting Act, CRS, IAS / IFRS) used to define general and detailed rules of accounting in a given country or union (macro dimension). 2.Intentional actions of the management / entity’s owners focused on accounting in accordance with applicable rules, requirements, needs (micro dimension).	It is defined as: 1. Human activities created by the needs of economic life, adapted to changing economic conditions. 2. Accounting systems being used by entities. 3. Services of specialized entities in area of accounting and revision of financial statements. 4. Entities and their individually established and accepted accounting policies for the preparation of financial statements.
CONCLUSIONS		
Theory leads to the emergence of new methods, principles, and procedures. It is transnational and timeless. Its purpose is to explain the solutions in use. The theory is closely related to practice because it is formulated on its basis and at the same time forms the basis of practice. Accounting policies are actions (often formalized) in the course of accounting that combine the roots of theory and practice. Theory shapes practice through accounting policy.		

Source: Brzezin, 2000, pp. 35–38; M. Bąk, 2013, pp. 63–64.

Each of these theories plays its part in developing accounting as a discipline as it becomes needed, for example, if it is necessary to order something to be done to achieve a certain goal, then the normative theory should be applied (Staubus, 2003, p. 16).

It is worth emphasizing that the period from the 15th to the 19th century in the development of accounting is referred to as the so-called pre-theoretical, focused on explaining the practice, but it also includes achievements in accounting theory. An example is the personified theory of accounts and explanations of the principles of the dual accounting system. In turn, the period from the second half of the 19th century to the first half of the 20th century is characterized by the development of normative accounting theory, where account theories, account recording models, balance sheet theories, balance sheet valuation concepts deserve particular attention. In contrast, the 20th century is characterized by operations of non-governmental organizations which developed normative conceptual framework for financial accounting based on standards. At the same time, opponents of normative theories concentrated their efforts on empirical research, referring to positive accounting theories, on the basis of which information needed to create accounting standards is provided. Thanks to this, those who established accounting standards had the opportunity to assess the economic consequences of using different accounting methods and practices. In the 1980s, behavioral research in accounting was launched.

Summing up this general characteristic of the history of the development of the accounting theory, one can say that contemporary accounting research is dominated by empirical research within positive accounting theories that deal with behavioral research (Bąk, 2013, p. 65).

3. INTERDISCIPLINARY NATURE OF ACCOUNTING

Accounting, like every scientific discipline, does not exist in isolation from other sciences. It is somewhat connected with them and often interacts with them. The very fact that accounting is a social domain explains why many tools of the social sciences are used in its research. Social processes, including economic processes, cannot be fully understood without taking a broader, interdisciplinary approach[3]. Through interdisciplinary research, it is possible to build better theories, and thus better science (Wojtysiak-Kotlarski, 2010, pp. 211–212; Artienwicz, 2013, p. 9).

The history of evolution of accounting shows that it is linked to many science disciplines. The strongest link, however, is to the science of finance and the sciences of management, which results from the essence of accounting. Table 2 shows the links between accounting and the listed disciplines.

The relationships between accounting and finance education are expressed, among others, through the subject of accounting, as well as the final product of accounting which is the financial statement. The subject of interest in accounting are economic phenomena and processes (including financial) expressed monetarily, which exist in business entities and can be dealt with on both the micro and macro scale. Accounting is also a basic source of material for research used by the science of finance[4].

In turn, management sciences and accounting are linked by the fact that accounting assists the process of managing one or several business entities (in the case of capital groups). Information generated by accountancy (accounting, financial and management reporting) provides support in the decision-making process at each stage of an entity's management, both operational and strategic. The connection between accounting and management is visible through, among others, the functions accounting serves, i.e. informative[5], evaluation, control, evidential, etc.

Table 2. Links between accounting and selected scientific disciplines

Scientific discipline	Nature of mutual features
Economics	Accounting operates in a particular entity which is a part of the community. Entity's assets are subject to economic forces and the results are disclosed in a specific manner using accounting.
Finance	The subject of interest in accounting are economic events, which include, among others, financial phenomena on both the micro and macro scales.
Management sciences	Accounting assists the process of managing an entity at every stage of its management.
Mathematics	Accounting (especially theory) is based on mathematics, its influence is present in schemes and calculations.
Information technology	Financial and accounting programs which enable the recording and preparation of reports using IT. Accounting was faced with new challenges in the reporting process, such as the use of XBRL.
Physics	The principle of conservation of energy allows us to understand the essence of the balance sheet method. Mutual relationships between assets and capital can also be explained by the analogy between energy and matter. B. Nita (2009, p. 29) notes that "just as energy needs a physical carrier, so in accounting, assets embody capital, because capital is the homogeneous energy contained in heterogeneous assets". M. Dobija (2010, p. 26) believes that accounting has the characteristics of physical sciences.

Source: Bąk, 2013, p. 67–68.

[3] Interdisciplinarity is most often defined as "the interaction of two or more disciplines, including the simple exchange of ideas as well as the mutual integration of concepts, methodologies, procedures, epistemology, terminology and data that leads to the organization of research and education in a fairly broad area". Cf. OECD, 1972, pp. 25–26; Artienwicz, 2013, p. 8.

[4] M. Andrzejewski (2012, pp. 20–40) wrote about the connections between accounting and the science of finance.

[5] The functions of accounting were described in publications such as: Maślanka, 2004, pp. 181–192; Stępień, 2013, p. 807; Stępień, 2008, pp. 49–51.

It is worth noting that some scientific disciplines allow us to explain the origin and nature of accounting, among them are mathematics and physics. "The Father of accounting" – Luca Pacioli used mathematical skills in the creation of his work on the principle of double-entry bookkeeping and the functioning of account books. On the other hand, the principle of energy conservation characteristic of physics has helped to understand the duality of an entity's resources, which in accounting are expressed in the form of assets (the wealth) and liabilities (the capital) (Bąk, 2013, p. 68).

Despite links between accounting and other scientific disciplines, it is important to point out that accounting is an independent discipline. As Jarugowa (1997, p. 164) writes, accounting is an independent science and cannot be categorized as any other science, although boundaries between them are not very clear and precise and it is impossible to accurately determine where accounting ends and other sciences begin.

Accounting, as an independent scientific discipline, can be considered an economic science, which, in turn, is put into the field of social sciences that research the structure and functions of the history of society, its culture and developmental character[6]. For the sake of accuracy, it is important to note that accounting is not currently considered an independent scientific discipline in all countries.

In the United States of America, for example, accounting is considered an independent scientific discipline, while in other countries – a sub-discipline of other sciences. In Poland accounting is considered a sub-discipline of economic sciences, while in Germany a sub-discipline of management science (Turyna, 2014, p. 5). The diversity in the classification of accounting within scientific disciplines in particular countries is due to different awareness and stand on achievements in theoretical accountancy, which is reflected in the adopted legal regulations.

Accounting as a discipline within the social sciences develops in response to changing social needs. By leveraging its versatility and flexibility, accounting adapts to the ever-growing expectations of its users, providing more and more diverse information about the activities of different types of business and the different areas of their business. These circumstances probably led to the creation of new adjective descriptions for the scope and application of accounting . The use of particular terms relating to accounting often depends on the stage of development of accounting and the era and the people using them (for example, in 19th century, the term "merchant accountancy" was used, and in the 21st century the term "internet accounting" was introduced). In many cases, the introduction of these additional terms is justified and points to the diverse nature of activities or the nature of the research area of accounting. However, new accounting terms (new adjectives) are emerging, resulting from marketing activities aimed at generating the right interest, or due to misunderstanding the essence of accounting. It is also worth emphasizing the fact that, most often these names/terms are used in English-language literature, and in the Polish-language version they are literal translations, not necessarily accurate (Sojak 2011, p. 280–281).

4. CONCLUSIONS

The above considerations on the essence of accounting as a scientific discipline and its linkages with other sciences led to specific observations and conclusions.

Accounting describes the complex economic reality and explains it using its own methodology. The accounting methodology is, among others, comprises of the subjective method and the balance sheet method. It should be emphasized that the balance sheet method is an inextricably

[6] According to the Regulation of the Minister of Science and Higher Education of 8 August 2011 on areas of knowledge, science and art and scientific and artistic disciplines (Journal of Laws 2011, No 179, item 1065) within the field of social sciences, the following areas were singled out: social sciences, economic sciences, legal sciences. In the field of economic sciences, the following scientific disciplines were singled out: economics, finance, management science, commodity science. Accounting in accordance with this regulation was not classified as an independent scientific discipline, which results in classifying it into the scientific discipline of finance. Cf. Bąk, 2013, p. 56–57.

linked cognitive accounting method, which determines the specificity of perception and study of economic phenomena through accounting.

In addition, accounting is concerned with the study of connections and events of a social nature and the generation of useful information for many receivers of economic life. It is an applied science because it has practical use in business.

Despite the existence of many varieties of accounting (e.g. bank accounting, accounting of insurance companies, accounting of agricultural units, accounting of "traditional" enterprises), the core of accounting remains the same. Accountancy has kept the unity of the system.

Accounting has a rich theoretical achievement that has been shaped by its centuries-old development. These achievements include deductive and induction theories, normative and positive theories as well as behavioral theories.

All the arguments mentioned above support the idea of acknowledging accounting as a scientific discipline.

It is also worth stressing that the learning of accounting is linked to many disciplines such as economics, mathematics, information technology (computer science), and even physics. The strongest relationships, however, combine accounting with the study of finance and management sciences.

However, it must be noted that despite the links between accounting and other scientific disciplines, accounting remains an independent scientific discipline.

BIBLIOGRAPHY

Andrzejewski M. (2012), *Korygująca funkcja rewizji finansowej w systemie rachunkowości*, Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie, Kraków.

Artienwicz N. (2013), *Rachunkowość behawioralna jako interdyscyplinarny nurt rachunkowości i społecznych nauk o zachowaniu*, Zeszyty Teoretyczne Rachunkowości, t. 71 (127), SKwP, Warszawa.

Babuśka E. (2013), *Teoria rachunkowości i jej miejsce w dyscyplinarnej strukturze nauk o kierowaniu organizacjami*, Zeszyty Teoretyczne Rachunkowości, t. 71 (127), SKwP, Warszawa.

Bąk M. (2013), *Wybrane problemy rachunkowości – jej status naukowy i obszary badawcze*, Zeszyty Teoretyczne Rachunkowości, t. 71 (127), SKwP, Warszawa.

Brzezin W. (1998), *Ogólna teoria rachunkowości*, Wydawnictwo Politechniki Częstochowskiej, Częstochowa.

Brzezin W. (2000), *Mikro- i makropolityka rachunkowości*, Prace Naukowe Akademii Ekonomicznej we Wrocławiu, Nr 876, Wrocław.

Burzym E. (1980), *Rachunkowość przedsiębiorstw i instytucji*, PWE, Warszawa.

Burzym E., Dobija M. (1989), *Koncepcja trójwymiarowego podsystemu ewidencyjnego rachunkowości*, Zeszyty Naukowe Akademii Ekonomicznej w Krakowie, Kraków.

Demski J. S. (2007), *Is Accounting an Academic Discipline?*, "Accounting Horizons", vol. 21, No. 2, June.

Dobija M. (1988), *Założenia trójwymiarowej rachunkowości* (in:) *Perspektywy rozwoju rachunkowości*, SKwP, Kraków.

Dobija M. (1990), *Teoretyczne i organizacyjne podstawy systemu trójwymiarowej rachunkowości*, Zeszyty Naukowe Akademii Ekonomicznej w Krakowie, Kraków.

Dobija M. (2010), *Rachunkowość jako dyscyplina naukowa*, Zeszyty Teoretyczne Rachunkowości, t. 59 (115), SKwP, Warszawa.

Dobija M. (2014), *Dualizm kapitału i aktywów jako podstawa rachunkowości i ekonomii* (in:) *Teoria rachunkowości podstawa nauk ekonomicznych*, ed. M. Dobija, Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie, Kraków.

Hendriksen E. A., van Breda M. F. (2002), *Teoria rachunkowości*, PWN, Warszawa.

Ijiri Y. (1982), *Triple-entry bookkeeping and income momentum*, "Studies in Accounting Research", No. 18, American Accounting Association.

Ijiri Y. (1986), *A Framework for Triple-Entry Bookkeeping*, “The Accounting Review”, No. 4.
Jarugowa A. (1991), *Niektóre wyznaczniki rozwoju rachunkowości* (in:) *Współczesne problemy rachunkowości*, ed. A. Jarugowa, PWE, Warszawa.
Jarugowa A. (1997), *Jarosław Wiaczesławowicz Sokołow: “Rachunkowość. Od źródeł do naszych dni”*, Zeszyty Teoretyczne Rady Naukowej, t. 42, SKwP, Warszawa
Maślanka T. (2004), *Rachunek przepływów pieniężnych jako źródło informacji o przedsiębiorstwie* (in:) *Nauki finansowe wobec współczesnych problemów gospodarki polskiej*, ed. Z. Dresler, AE w Krakowie, Kraków.
Maślanka T. (2009), *Wartość czy zysk – rozważania na temat głównego celu zarządzania finansami przedsiębiorstwa* (in:) *Bankowość w dobie kryzysu finansowego a perspektywy rozwoju regionów,* T. III. (in:) *Przedsiębiorstwo wobec kryzysu finansowego*, ed. S. Owsiak, Wyższa Szkoła Bankowości i Finansów w Bielsku-Białej, Bielsko-Biała.
Nita B. (2009), *Rola rachunkowości zarządczej we wspomaganiu zarządzania dokonaniami przedsiębiorstwa*, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, Wrocław.
OECD (1972), Interdisciplinarity: Problems of Teaching and Research in Universities, Paris.
Sobańska I. (2012), *Jedność systemu rachunkowości*, Zeszyty Teoretyczne Rachunkowości, t. 66 (122), SKwP, Warszawa.
Sojak S. (2011), *Rachunkowość przymiotnikowa*, Zeszyty Teoretyczne Rachunkowości, t. 62 (118), SKwP, Warszawa.
Staubus G. J. (2003), *The theory deficit in accounting* (in:) *General Accounting Theory*, Akademia Ekonomiczna w Krakowie, Kraków.
Stępień K. (2008), *Rentowność a wypłacalność przedsiębiorstw*, Difin, Warszawa.
Stępień K. (2012), *Kluczowe mierniki wyników działalności przedsiębiorstw*, Zeszyty Naukowe Uniwersytetu Szczecińskiego nr 690, Finanse, Rynki Finansowe, Ubezpieczenia nr 51, Szczecin.
Stępień K. (2013), *Społeczna odpowiedzialność rachunkowości* (in:) *Nauka o rachunkowości na progu gospodarki opartej na wiedzy. Polski sondaż środowiskowy*, ed. A. Karmańska, Oficyna Wydawnicza Szkoły Głównej Handlowej w Warszawie, Warszawa.
Stępień K. (2016), *Sprawozdanie finansowe przedsiębiorstwa i jego przydatność analityczna* (in:) *Integracja sposobu sporządzania, analizy i badania sprawozdania finansowego*, ed. B. Micherda, K. Stępień, Difin, Warszawa.
Szychta A. (2010), *Współczesne kierunki zainteresowania teorii rachunkowości finansowej w świetle zarysu jej rozwoju*, Zeszyty Teoretyczne Rachunkowości, t. 56 (112), SKwP, Warszawa.
The Regulation of the Minister of Science and Higher Education of 8 August 2011 on areas of knowledge, science and art and scientific and artistic disciplines (Journal of Laws 2011, No 179, item 1065).
Turyna J. (2014), *Rachunkowość finansowa*, Wydawnictwo C. H. Beck, Warszawa.
Webster’s Third New International Dictionary (1961), G.& C. Merriam, Springfield, Mass.
Wojtysiak-Kotlarski M. (2010), *Interdyscyplinarność jako cecha rozwoju nauki* (in:) *Metodologia nauk ekonomicznych. Dylematy i wyzwania*, ed. K. Kuciński, Difin, Warszawa.

Summary and Final Comments

After five successful years of **“IFRS – Global Rules and Local Use”**, the sixth edition of this conference at Anglo-American University was organized on October 11 and 12, 2018. It was held once again in the historical premises at 5 Letenská Street, the new residence of AAU. Topics of this year´s conference covered various aspects of IFRS implementation in the context of varied national and cultural environments, as well as related material.

Experts in accounting theory and practice in the international academic and student community were assembled to exchange research results, thoughts and perspectives. Focus was on various aspects and problems arising from implementation of IFRS in national environments – especially factors that determine effects, success rate and scope, as well those influencing levels of harmonization. Special attention was paid to national cultural influences on implementation of IFRS in all its forms and as well as the results. New trends in firms´ reporting issues regarding ethics, bankruptcy, integrated and nonfinancial reporting, methodology and industrial organization were also reviewed.

International contributors provided opportunities to look at implementation and use of IFRS in the Czech Republic, Romania, Poland and other European countries. Beyond national borders, acceptance and presentation of contributions lend depth to the current state of knowledge about application of IFRS at various levels and from varied perspectives. The conference further hosted papers related to developments confronted by ethical and environmental issues emergent in business models in the current world economy.

All scientific papers submitted to the conference were subjected to a rigorous double-blind review process. One paper was preliminarily accepted for publication in a professional journal. This paper was excluded from proceedings. The remainder of the papers were prepared for the proceedings and will be available on the website of Anglo-American University, as well as being submitted for indexation in the Web of Science. Conference proceedings from years 2014–17 are available on the Web of Science Core Collection on the WEB OF SCIENCE THOMSON REUTERS.

Looking forward, the conference aims primarily to provide opportunity for and facilitation of congress of academics, practitioners and professional educators concentrating on development of papers and/or on preparation of joint academic works.

In summation, the contributions provide enlightened insight into the state of implementation of IFRS in different areas of national economies, in order to enhance better evaluation of the current situation.

This collection of conference contributions is intended to contribute to dissemination of new findings presented at the conference amongst interested parties on this issue and further to inspire research in this area.

List of authors

Author	Affiliation	E-mail
Mariusz ANDRZEJEWSKI	Cracow University of Economics, Poland	andrzejm@uek.krakow.pl
Ewa Wiktoria BABUŚKA	Cracow University of Economics, Poland	babuskae@uek.krakow.pl
Kinga BAUER	Cracow University of Economics, Poland	kinga.bauer@uek.krakow.pl
Marek BAUER	Cracow University of Technology, Poland	mbauer@pk.edu.pl
Anna BIAŁEK-JAWORSKA	Faculty of Economic Sciences University of Warsaw, Poland	abialek@wne.uw.edu.pl
Alina BRATU	Bucharest University of Economic Studies, Romania	alina.bratu@cig.ase.ro
José Carlos CASAS-ROSAL	University of Córdoba, Spain	jcasas@uco.es
Dagmar ČÁMSKÁ	Czech Technical University, MIAS School of Business & Interdisciplinary Studies, Czech Republic	dagmar.camska@cvut.cz
Mihaela DUMITRAȘCU	Bucharest University of Economic Studies, Romania	
Patryk DUNAL	Cracow University of Economics, Poland	patrykdunal@uek.krakow.pl
Liliana FELEAGĂ	Bucharest University of Economic Studies, Romania	liliana.feleaga@cig.ase.ro
Lukasz FURMAN	State Higher Vocational School Stanisława Pigonia in Krosno, Poland	lukef@wp.pl
Witold FURMAN	Cracow University of Economics, Poland	witold.furman@uek.krakow.pl
Ewa GRABOWSKA-KACZMARCZYK	Cracow University of Economics, Poland	grabowse@uek.krakow.pl
Jan HOSPODKA	University of Economics in Prague, Czech Republic	Jan.hospodka@vse.cz
Bogdan-Ștefan IONESCU	Bucharest University of Economic Studies, Romania	
Juan Antonio JIMBER DEL RÍO	University of Córdoba, Spain	jjimber@uco.es
Irena JINDŘICHOVSKÁ	Anglo-American University, Prague, Czech Republic	irena.jindrichovska@aauni.edu

Kacper KANDEFER	State Higher Vocational School Stanisława Pigonia in Krosno, Poland	kacperspace@gmail.com
Marcin KĘDZIOR	Cracow University of Economics, Poland	kedziorm@uek.krakow.pl
Dorota KĘDZIOR	Cracow University of Economics, Poland	kedziord@uek.krakow.pl
Jiří KLEČKA	University of Chemistry and Technology, Czech Republic	jiri.klecka@vscht.cz
Josef KOŠŤÁLEK	Czech Technical University in Prague, Czech Republic	josef.kostalek@fs.cvut.cz
Pavla KOŤÁTKOVÁ STRÁNSKÁ	Czech Technical University in Prague, Czech Republic	pavla.kotatkova.stranska@cvut.cz
Dana KUBICKOVA	University of Finance and Administration, Prague, Czech Republic	dana.kubickova@centrum.cz
Jan LÁNSKÝ	University of Finance and Administration, Prague, Czech Republic	zizelevak@gmail.com
Enikő LÖRINCZOV	Czech University of Life Sciences, Prague, Czech Republic	
Małgorzata LORENS	State Higher Vocational School Stanisława Pigonia in Krosno, Poland	m.lorens.98@wp.pl
Radka MacGREGOR PELIKÁNOVÁ	Anglo-American University, Prague, Czech Republic	radkamacgregor@yahoo.com
Robert MacGREGOR	Free-lance writer	robertkmacgregor@yahoo.com
Alexandra-Gabriela MARINA	Babes-Bolyai University, Cluj-Napoca, Romania	alexandra.marina@econ.ubbcluj.ro
Alexandra-Oana MARINESCU	Bucharest University of Economic Studies, Romania	alexandra.marinescu@cig.ase.ro
Tomasz MAŚLANKA	Cracow University of Economics, Poland	maslankt@uek.krakow.pl
Iwona MAZUR-MAŚLANKA	Cracow University of Economics, Poland	maslanki@uek.krakow.pl
David John MUIR	Anglo-American University, Prague, Czech Republic	david.muir@aauni.edu

William NEAL	University of New York in Prague, Czech Republic	weal@unyp.cz
Vladimír NULÍČEK	University of Finance and Administration, Prague, Czech Republic	vnulicek@gmail.com
Paweł OŻGA	Cracow University of Economics, Poland	p.ozga@interia.pl
Vladislav PAVLÁT	University of Finance and Administration, Prague, Czech Republic	vladislav.pavlat@vsfs.cz
Pietro Andrea PODDA	Anglo American University, Prague, Czech Republic	Pietro.podda@aauni.edu
Monika RANDAKOVA	University of Economics in Prague, Czech Republic	randakm@vse.cz
Maria-Silvia SĂNDULESCU	The Bucharest University of Economic Studies, Romania	maria.sandulescu@cig.ase.ro
Petr SEĎA	Technical University of Ostrava, Czech Republic	petr.seda@vsb.cz
Ioana SOFIAN (NEACȘU)	Bucharest University of Economic Studies, Romania	ioana.sofian@yahoo.com
Marta STÁROVÁ	Czech University of Life Sciences, Prague, Czech Republic	starovam@pef.czu.cz
Konrad STĘPIEŃ	Cracow University of Economics, Poland	stepienk@uek.krakow.pl
Cristina - Florina ȚICOI	The Bucharest University of Economic Studies, Romania	cristina@cristinaticoi.ro
Erginbay UGURLU	Istanbul Aydın University, Turkey	erginbay@gmail.com
Marian VDOVIAK	Czech University of Life Sciences, Prague, Czech Republic	Marian_vdoviak@centrum.cz
Nuria Ceular VILLAMANDOS	University of Córdoba, Spain	nuria.ceular@uco.es
Hana VOSTROVSKÁ	Czech University of Life Sciences, Prague, Czech Republic	
Piotr WÓJTOWICZ	Faculty of Management Economic University of Cracow, Poland	wojtowip@uek.krakow.pl
Joanna WYROBEK	Cracow University of Economics, Poland	wyrobekj@uek.krakow.pl

IFRS: GLOBAL RULES & LOCAL USE

Editors:

doc. Ing. Irena Jindřichovská, CSc., Anglo-American University, Prague
Ing. Dana Kubičková, CSc., University of Finance and Administration, Prague

Publisher:	Anglo-American University / Anglo-americká vysoká škola, z.ú.
Place of publication:	Prague / Praha
Year of publication:	2018
Number of pages:	352

First edition

ISBN 978-80-906585-7-8