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Wyższej Szkoły Bankowej w Poznaniu
2016, t. 66, nr 1

Współczesne wyzwania rachunkowości w globalnym otoczeniu

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Preface

Contemporary accounting is developing very rapidly these days and should be oriented towards achievement of the objectives important for various groups of stakeholders. On the one hand, accounting is focused on providing information to external entities by means of financial reporting. Thus, there are a lot of challenges associated with international standardization of accounting in a global environment. On the other hand, accounting system is aimed at supporting decision-making process as well as performance measurement and management.

In the present volume of the Research Papers, the authors discuss the selected challenges of accounting, important from the practical point of view as well as contributing to the current state-of-the-art in this field of research. Thus, the objective of this volume is to discuss contemporary challenges of both financial accounting and managerial accounting. There are three major types of the issues elaborated in this volume:

1) current research problems and directions such as development trends of management accounting, behavioral accounting research, challenges of financial reporting, as well as evolution and trends in presentation of innovation in financial statements,

2) measurement problems in accounting, including fair value measurement, efficiency of analytical methods, quality measurement,

3) specific issues and dilemmas of accounting such as reclassification of assets in accounting outsourcing of accounting in Russia, economic risk in the context of tourism sector development, managerial control in local government and cost analysis of human labor.

The Authors believe that submitted papers contribute to the global discussion on the state-of-the art and development trends of accounting.

Bartłomiej Nita

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Wyższej Szkoły Bankowej w Poznaniu
2016, t. 66, nr 1

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Economic risk vs tourism sector development – an example of tour operator enterprises

Abstract. *Economic risk is an integral part of the business activity of each enterprise. In extreme cases, the risk taken has an impact on decisions of suspending business activity, liquidation, or the bankruptcy of companies. The aim of the article is to highlight the problems surrounding the risk connected with business activity in the tourism sector and to outline the structure of tour operators and travel agents against bankruptcies in Poland. In the first part of this study, the authors presented general issues concerning the significance of the tourism sector for the whole economy. Following that, the risks connected with business activity in the tourism sector were discussed. Among the last paragraphs of the study, a synthetic analysis was performed on tour operators and travel agents that were struck off the list of CEOTiPT, while taking into consideration the causes of that.*

Keywords: *economic risk, tour operator, tourism sector*

Introduction

All over the world tourism industry belongs to one of the most sensitive sectors due to its heavy reliance on market conditions. Disrupted tourist activity around the world caused by the economic crisis contributed to the problems in the activity of tour operators and travel agencies, as well as other companies functioning within tourism industry. Mentioned companies are specifically exposed to outsourced crises. In contrary to insource ones that can be controlled by managers, crises arisen outside the enterprise provoke occurrences that are out of companies' range of control. That is resulting in higher degree of risk and higher uncertainty in their activity. What is more, the characteristic features of tourism product like seasonality or complementarity are conducting with potentially bigger issues concerning risk management, due to the fact that supply for tourist services cannot be easily adjusted to diminishing demand for them [Batorski 2013: 76].

The scale of effects of actions taken in enterprise management, mainly depends on experience and accuracy of decisions made by decision-makers. While those decisions carry a specified economic risk, at the same time undeniably it is vital to agree with statement that if one wants to gain, he has to be ready to take the risk. From that perspective, decisions concerning the range and type of risk to be taken are a key issue while considering business success [Damodaran 2009: 31-32].

The aim of the article is to acquaint the lecturer with the problems evolving around risk in a business activity of enterprises in a tourism sector and to outline the structure of tour operators and travel agents against bankruptcies of enterprises in Poland.

In the first part of the study author presented general issues concerning the significance of tourism sector for the whole economy. Following that perception, the risk connected with business activity in tourism sector was discussed. Among the last paragraphs of the study there was performed a synthetic analysis of tour operators and travel agents that were stroke off the list from Central Data Base of Tour operators and Travel agents (CEOTiPT), taking into consideration the causes of it.

1. Characteristics of tourism sector

The tourism sector is one of the most rapidly developing industries in Poland and all over the world. As indicated in the introduction, the impact this sector has on the economic development is significant. It contributes development to other sectors, stimulates GDP and generates employment. It is worth noting that in 2011, global scale tourism sector contributed to approximately 3% world GDP and 3.3% world employment. The whole tourism economy participation in world GDP is estimated to be around 9.1% [WTTC 2012]. Observed fluctuations of income level from tourism in 2009 were resulted by world economic crisis [MSiT 2013: 73].

According to World Travel & Tourism Council (WTTC) despite difficulties in world's economy situation, the tourism sector is the only sector that has notated growth in 2011.Therefore tourism is able to create a "protective umbrella," generating systematically new jobs, especially through the creation of new microenterprises. Currently in UE countries, the tourism sector employs approximately 18 million people, which states for almost 8.5% of jobs worldwide [MSiT 2013: 73].

As well, the Poland's tourism sector is of grate economic importance, which is reflected in its contribution to GDP. In Table 1 there are included calculation results concerning share of tourism sector in gross domestic product creation in Poland.

Table 1. Contribution of tourism sector to total GDP in Poland in 2006-2014

Specification	2006	2007	2008	2009	2010	2011	2012	2013	2014
Gross Domestic Product (in billion PLN)	1060.0	1176.7	1275.4	1334.5	1416.5	1153.5	1615.8	1662.6	1728.6
Income from tourism (in billion PLN)	64.7	70.0	75.0	70.7	74.2	72.7	75.5	85.7	88.4
Tourism sector's share of GDP (in %)	6.1	5.9	5,9	5.3	5.2	4.8	4.7	5.2	5.1

S o u r c e: author's compilation based on: Główny Urząd Statystyczny (GUS), www.stat.gov.pl; Institute of Tourism, www.intur.com.pl [21.05.2015].

After analyzing the results of the calculations included in Table 1 it is possible to say that contribution of tourism the sector in creation of total GDP in the period of analysis has been slightly fluctuating between 4.7% and 6.1%. The highest share of tourism sector in total GDP was observed in first year of conducted analysis (6.1%). The lowest one (4.7%), that was notated with simultaneously increase in income in tourism sector in absolute values in 2012 that amounted to 75.5 billion zł. Level of income from tourism in absolute values was the highest in the last two years of analyzed period, that is years 2013 and 2014. Their value was respectively 85.7 and 88.4 billion zł, while the share of tourism sector in total GDP was differentiated. This occurrence can be explained with quicker growth of total gross domestic product then the growth of income from discussed sector (the indicator of GDP growth in 2014 with respect to 2006 was 163% and indicator of growth of income from tourism sector in the same period was 136%). It is vital to note that observed changes in 2008-2012 were resulted, inter alia, by world economic crisis that influenced among others polish economy. Tourism is an extremely sensitive industry while considering economic changes, which is why it is crucial for its development to stimulate and carry out investment activities. According to WTTC prognosis Poland is facing perspective of development in the tourism sector, predicting its share increase in total GDP to 5.8%. That fact indicates growth of income from the discussed industry from 88.4 billion zł in 2014 to over 100 billion in 2022 [WTTC 2012: 3].

Those considerations have also been confirmed in the published results, regarding international ratings of tourism competitiveness. The results demonstrated that because of Poland's low position, 67th, in the category "Business environment and tourism infrastructure," there existed a need to pay attention to the influence of transport infrastructure on the tourism sector development. Actions that should be intensified are among the others: increase in number of highways and connecting them in the international system, improvement in state of transit routes, increase in number of local airports and improvement in state of train stations. Moreover, it is crucial to keep changing the country's image, which on the west is perceived as a country of an increased risk – even in 2009 Poland was at ninety first position when it comes to safety. In this area there is a positive change observed, which finds confirmation in Poland moving up to fiftieth position in the same ranking in 2011 [Ministerstwo Sportu i Turystyki 2013: 129].

Contemplating the importance of the tourism sector for the whole economy it is worth paying attention to its growth potential. The results of UNWTO research concerning the number of tourists in the world perspective are the best illustration of that potential. Mentioned results are demonstrated in the Figure 1.

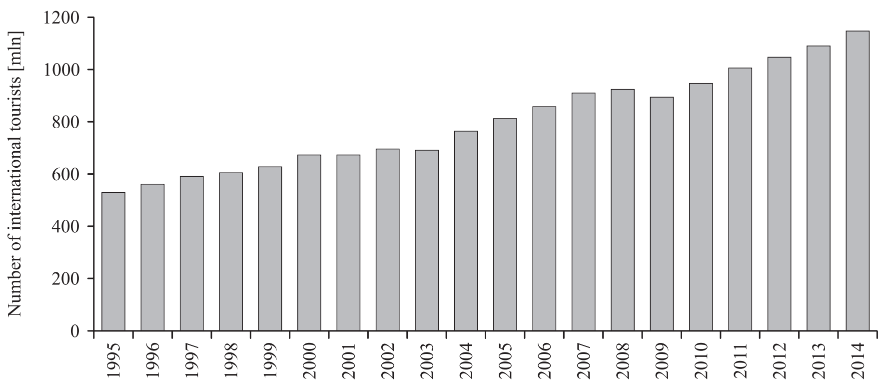

Figure 1. Number of international tourists in the world in 1995-2014 [million]

S o u r c e: author's compilation based on UNWTO 2015.

Basing on conducted compilation, it is possible to deduce the tourism sector every year to provide services for higher number of tourists. In the analyzed period a steady upward trend is observed. While analyzing certain years of conducted research, the first lower growth, which was 0.01%, was notated in 2001. What is more, the first decrease of 0.6% in the number of international tourists was in 2003. Between years 2004-2008 the indicator of growth was positive, and then in 2009 there was a second and the biggest decrease in the number of international tourists, that is of 3.9%. It is important to note that the two mentioned decreases in the number of international tourists, that is in 2003 and 2009, are the periods of economy's recession. In the next years of the research the increase in number of international tourists in the world, measured by indicator of growth is no lower than 4%.

The next part of the research analyses the changes in numbers of international tourists in the certain regions of world. The results are demonstrated in the Figure 2.

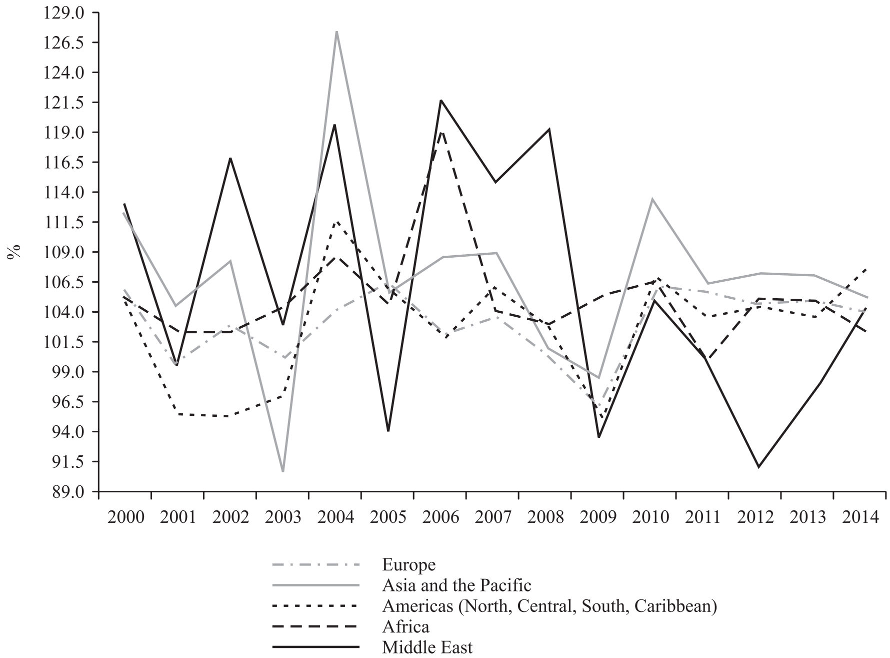

Figure 2. Dynamics of the number of international tourist in certain world regions in 2000-2014

S o u r c e: author's compilation based on: WTO 2005, UNWTO 2006, 2008, 2011, 2012, 2014, 2015

From the data obtained during the calculation it is possible to observe that the highest number of tourists are travelling in the region of Europe. The indicator of growth in the number of the tourists visiting this part of the world is structured in a steady upward trend. After Europe, the next favorite location for tourists is Asia and the Pacific. In the context of the economic recession, during 2003 mentioned areas suffered the biggest decrease in growth of tourists numbers. Areas of North, Central, South America and Caribbean are being selected by visitors as third region, although in 2001-2003 decreases in dynamics were as well observed for those locations. Two last regions in the research – Africa and Middle East – are being chosen as a tourist destination by similar number of people. However, it is worth paying attention to the notated changes in the number of tourists visiting Middle East. They are very significant compering to other regions. The biggest decreases in the number of tourists in this area can be observed in 2005, 2009 and 2012.

To recapitulate previous considerations, it is possible to say that the tourism sector is one of the main links that is improving the European economy condition, which still experiences effects of the crisis from years 2008-2009 [UNWTO 2015].

2. Risk in business activities of tour operators and travel agents

In the conditions of market economy risk is a widespread occurrence and every decision made is connected with it in both – direct and indirect way. While observing the development of the society and of its environment, we can perceive that risk has always existed and it is hard to find actions that wouldn't be associated with it. Risk is associated with actions, well as certain states, namely:

– state of emergency,
– possibility of appearance of unpredictable event,
– possibility of suffering a loss,
– possibility of obtaining different result to the expected one [Monkiewicz 2002: 17-48].

In business practice very often word "risk" and "uncertainty" are being used uncertainty. For possible differentiation of the two terms it is crucial to look at the objective character of risk and subjective character of uncertainty. Basic differences between them can be defined as follows [Niedziółka 2002: 23-64]:

1. Risk can be measured with probability and uncertainty only with the level of trust [Kaczmarek 2001: 16-102].
2. Risk occurs when the number of potential scenarios in the range of formation of the targeted value is limited, uncertainty allows the possibility of each scenario occurrence, among their infinite number.
3. In the case of risk certain scenario occurrence results in specified level of targeted value, however uncertainty means the situation when occurrence of specified scenario does not have significant connection with final level of targeted value [cf. Nahotko 2001: 36-66].

Taking into consideration the subject of this study, it is significant to outline as well other possible classification, which is for the systematic risk and specific risk. The systematic risk is a result of external factors, that would not get under control of the entity that is exposed to them. Whereas, the specific risk is a part of the total risk, that is individual for each entity. This classification is especially useful while selecting appropriate tools for risk management [cf. Pritchard 2002: 6-53]. In the context of the above deliberation evolving around risk in business activity in the tourism sector, focusing on tour operators and travel agents, depending on selected criteria, it is possible to distinguish following risks [cf. Sobczyk 2013: 225-228]:

1. Financial and non-financial – both groups of risk influence the financial results of a company, although with financial risk we are concerning the direct influence of it. That leads to evaluation of the suffered loses, which is hard to measure when it comes to the non-financial risk.
2. Static and dynamic – the static risk occurs regardless of time or lack of economic, technological or civilization growth for example: descent of an avalanche. Dynamic risk may generate financial loss in the scale of the company, as well as the whole group of companies. It is created by changes in prices, preferences of touristic product purchasers, fashion, etc…
3. Fundamental and particular – the examples of fundamental risk are floods, earthquakes, hurricanes etc. They essentially apply for big groups of people or even the whole society. Whereas the particular one causes loses in the individual dimension and we can rang among this type of risk for example: arson, robbery etc…
4. Pure and speculative – the first of them to a significant degree is measurable which leads to the fact that it is predictable with high probability. Because of its quantifiable character the pure risk can be analyzed with the use of statistical methods (law of large numbers). In case of the speculative risk we are dealing with the so-called “triple variance.” Realization of the speculative risk is justified in expecting benefits (profits) or suffering a loss. Failure in the realization of this risk results in the lack of losses or profits. For instance, an entrepreneur that is about to build a hotel, is counting on the success of his investment (profits). However because of economic recession this investment becomes unfortunate (creates losses). Resignation from proceeding with this investment is lack of losses as well as profits. In business practice only pure risk can be covered by insurance.
5. Probabilistic and nondeterministic – the probabilistic risk is possible for evaluation with the use of mathematical methods (the so-called prior risk) or statistical methods based on numerical information originated in the past (the so-called statistical risk). The other type of risk – nondeterministic – cannot be insured because it is highly difficult to estimate probability of its occurrence.

6. Natural and social – the natural risk is created by the nature and associated with forces of nature (for example: risk of storm, descent of an avalanche, flood). The social risk is related to the human as an individual or a group of people (society).

7. Personal and assets – the personal risk is connected with damage in personal goods as: life, health, ability to work etc. The property risk is classified as one of "the other risks," and is a threat to the properties (for example: risk of robbery, fire).

8. Statistical, technological and anthropogenic – the statistical risk is a result of the complexity of nature and lack of possibilities for prognosing future occurrences with particular precision (it is possible to only predict it approximately). The next one, technological risk is related to the tourists' use of equipment and technical devices (for example cable railway catastrophe). The last of the risks – anthropogenic – is conditioned with decisions made by human and his sense of responsibility (for example: bravado, overestimation of its own possibilities, recklessness or even thoughtlessness) [cf. Sobczyk 2013: 225-228].

Summarizing the above contemplation, it can be said that while aiming towards effective limitation of risk that the company is exposed to, it is essential to properly distinguish the risk and then manage it. That indicates making sure that decisions made are targeting the decrease in the level of impact certain risk have on the activity of a particular company. Especially detailed acknowledgement about the range and type of potential risk, allows to choose in appropriate time, preventing activities such as mentioned before insurances from certain types of risk.

3. Analysis of bankruptcies of tour operators and travel agencies in Poland

Taking into consideration the fact that economic risk is an integral part of a business activity and in the extreme cases taken risk has its impacts on bankruptcies, the examined data concerns changes that took place within the structure of tour operators and travel agents. The examination, included the indication of the causes of discontinuing business activity by those companies. The data analyzed was presented by Central Data Base of Tour operators and Travel agents. Table 2 presents the results of calculation on the number of tour operators and travel agents that were stuck off the list from CEOTiPT in years 1999-2014, with indication of the cause of it and the level of GDP in the examined period.

Table 2. The number of tour operators and travel agents that were stroke off the list from CEOTiPT in years 1999-2014

Year	Suspension of business activity	Ban on continuing business activity	Deletion from the list requested by the entre-preneur	Initiation of legal proceedings	Total	GDP (in %)
1999	–	–	2	–	2	4.10
2000	–	34	71	–	105	4.00
2001	–	66	158	3	227	1.00
2002	–	168	173	–	341	1.40
2003	–	279	438	3	720	3.80
2004	–	297	717	2	1016	5.30
2005	–	71	403	5	479	3.60
2006	–	50	221	2	273	6.20
2007	–	94	181	1	276	6.80
2008	–	87	209	4	300	5.10
2009	21	74	313	1	409	1,60
2010	52	126	242	28	450	3.90
2011	108	166	256	139	692	4.30
2012	259	216	317	65	932	2.00
2013	217	110	534	33	1114	1.20
2014	76	54	210	17	357	1.30

Source: author's compilation based on Central Data Base of Tour operators and Travel agents, www.turystyka.gov.pl/ceotipt [21.05.2015].

Based on above table, while considering the number of tour operators and travel agents that were stroke off the list from CEOTiPT in years 1999-2014 it is possible to divide it into three phases of changes. The first one between 1999-2006, can be described as the phase of dynamic growth in the number of companies delated from the list, from 2 businesses in 1999 up to 1016 in 2004. The next phase is two years long, and it is possible to observe within them, the strong tendency in diminishing number of the companies delated from the list. In the second phase 763 less businesses were stroke off the list, which meant that in 2006 the total number came to 273 companies. The last period, starting in 2007 can be described as the phase of steady upward tendency of the analyzed number of enterprises that came to 1114 businesses in 2013. In the last analyzed year, 2014, we notice a rapid drop in the number to 357 companies. While analyzing changes in the number of companies removed from the list of CEOTiPT, a very interesting conclusions are created. Most of the entrepreneurs requested deletion of their businesses from the list, that was from 34.01% in 2012 up to 100% in 1999 of total number of considered companies. As second reason observed is a ban on continuing business activity which accounted for 9.87% in 2013 up to 49.27% in 2002 of the businesses. Moreover, when analyzing the causes of striking the tour operators and travel agents off the list of CEOTiPT, we can clearly perceive two main factors influencing their business activity. The first one is a world economic recession proved by considerable growth in number of companies removed from discussed list starting from 2010. The second factor involves changes in law regulations that were introduced after the famous bankruptcies of companies from the tourism sector between 2010-2012. The changes concerning principles of insurances and functioning of tour operators resulted with the considerable drop in the number of businesses delated from the list in 2013 caused by the ban on continuing business activity of over 9.87%, with the higher number of the companies that the legal proceedings were initiated towards that came to the level of 19.75% and with higher number of deletion from the list requested by the entrepreneur of over 47%. Discussed changes were graphically presented in Figure 3.

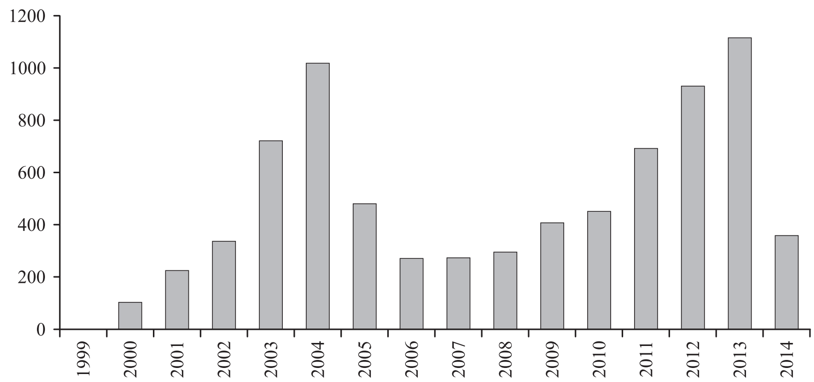

Figure 3. Dynamics of the number of the tour operators and travel agents that were stroke off the list from CEOTiPT in years 1999-2014

S o u r c e: author's compilation based on the Table 2.

Based on the conducted research and the business literature, it is possible to observe that in many countries there is a strong correlation between the business cycle and the number of insolvencies. That strength depends on changes of GDP. Not every economic growth causes a drop in the number of bankruptcies. It is claimed that GDP growth between 2-3% may be too low to turn around the upward trend of number of insolvencies in the particular country. A thesis is posed that very low growth of GDP, around 1% or less, usually actually does not cause a drop but a growth of bankruptcies at the level of 5-10%. That leads to the conclusion that in discussed case the correlation may be positive [cf. Gołębiowski 2006; Euler Hermes 2004: 2].

In the context of described thesis, a trial of verification concerning discussed changes within the structure of tour operators and travel agents against the changes in GDP growth indicator, was taken up.

For this purpose a Spearman's Rank Correlation indicator was calculated. The level of the indicator of correlation for analyzed amount of observations (16 years) is –0,1766. The "minus" sign indicates the negative correlation between the analyzed data. That implies that with a growth of GDP in Poland the number of the companies removed from the list of CEOTiPT is dropping and contrariwise with the drop of GDP the number of deletion is growing. Based on the conducted calculations it is possible to say that in the analyzed period in Poland the correlation is weak (<0.5).

Conclusion

Summarizing the study, it can be said that between 1999-2014 the situation in the tourism sector, alike in the whole polish economy, was changing dynamically. Obtained results of a research are indicating that correlation of the number of bankruptcies of tour operators and travel agents in Poland with the changes of GDP is very weak. In case of mentioned companies, the dominating role in their business activity have the characteristic for the tourism sector factors as: weather changes, economic changes and socio-political events and in the considerable lower degree changes of GDP.

The study was focusing around, in the opinion of authors, important factors that significantly influence increase of risk level in the business activity of enterprises from the tourism sector. It is worth to notice, that in the last year of analyzed period the most important factors affecting the market of tour operators and travel agents, were changes in law involving changes of functioning of the insurances. Because of the character of this article, limitations connected with it and the complexity of the discussed problems, this study accounts only for a contribution for the further research.

Refrences

Batorski J., 2013, *Instrumenty zarządzania kryzysowego w przedsiębiorstwie turystycznym. Perspektywa organizacyjnego uczenia się*, Kraków: Wyd. UJ.

Central Data Base of Tour operators and Travel agents, www.turystyka.gov.pl/ceotipt [21.05.2015].
Damodaran A., 2009, *Ryzyko strategiczne. Podstawy zarządzania ryzykiem*, Warszawa: Wyd. Akademickie i Profesjonalne.
Euler Hermes 2004, *Insolvency Outlook*, No. 2.
Gołębiowski G., 2006, Trendy upadłości przedsiębiorstw w Polsce, in: *Zarządzanie finansami firm. Teoria i praktyka*, ed. W. Pluta, Wrocław: AE we Wrocławiu.
GUS, www.stat.gov.pl; Instytut Turystyki, www.intur.com.pl. [17.04.2013].
Kaczmarek T., 2001, *Zarządzanie ryzykiem w przedsiębiorstwie eksportującym*, Gdańsk: ODiDK.
Nahotko S., Ryzyko ekonomiczne w działalności gospodarczej, Oficyna Wydawnicza Ośrodka Postępu Organizacyjnego, Bydgoszcz 2001.
Niedziółka P., 2002, *Zarządzanie ryzykiem stopy procentowej w banku*, Warszawa: Difin.
Ministerstwo Sportu i Turystyki, 2013, *Raport o stanie gospodarki turystycznej w latach 2007-2011*, Warszawa.
Monkiewicz I. (ed.), 2002, *Podstawy ubezpieczeń*, Warszawa: Poltext.
Pritchard C., 2002, *Zarządzanie ryzykiem w projektach*, Warszawa: WIG-Press.
Sobczyk M., 2013, *Ubezpieczenia w turystyce i rekreacji*, Warszawa: Difin.
WTTC 2012, *Travel & Tourism Economic Impact 2012. Poland*, World Travel & Tourism Council WTTC 2012, www.wttc.org/site_media/uploads/downloads/world2012.pdf [14.04.2013].
WTO 2005, *WTO World Tourist Barometer*, Vol. 3, No. 1.
UNWTO 2006, *UNWTO World Tourist Barometer*, Vol. 4, No. 1.
UNWTO 2008, *UNWTO World Tourist Barometer*, Vol. 2, No. 2.
UNWTO 2011, *UNWTO World Tourist Barometer, Advance Release*.
UNWTO 2012, *UNWTO World Tourist Barometer*, Vol. 10.
UNWTO 2014, *UNWTO World Tourist Barometer*, Vol. 12.
UNWTO 2015, *UNWTO World Tourism Barometer*, Vol. 13.

Ryzyko gospodarcze a rozwój sektora turystycznego na przykładzie touroperatorów

Streszczenie. *Ryzyko gospodarcze jest na stałe wpisane w funkcjonowanie przedsiębiorstw. W skrajnych przypadkach podjęte ryzyko ma swój wyraz w decyzji o zaniechaniu dalszej działalności, likwidacji lub upadłości przedsiębiorstwa. Celem opracowania jest przybliżenie zagadnień związanych z ryzykiem działalności przedsiębiorstw sektora turystycznego podsumowane analizą zmian w strukturze organizatorów turystyki i pośredników turystycznych na tle upadłości przedsiębiorstw w Polsce. W pierwszej kolejności przybliżono ogólne zagadnienia dotyczące znaczenia sektora turystycznego dla gospodarki, a następnie w ujęciu syntetycznym omówiono ryzyko związane z działalnością przedsiębiorstw tego sektora. W ostatnich akapitach opracowania dokonano syntetycznej analizy wykreśleń touroperatorów i pośredników turystycznych z CEOTiPT z uwzględnieniem ich przyczyn.*

Słowa kluczowe: *ryzyko gospodarcze, touroperator, sektor turystyczny*

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Reclassification of assets and the need to provide a true and fair view of a business entity

Abstract. *To run a business, economic entities have to use assets: physical assets, intangible assets, and financial assets. Reclassifications are often accompanied by a change in the measurement method. The high initial amounts and/or revalued amounts may significantly impact the balance sheet total and the financial result. This is especially true when it comes to fixed assets. From the perspective of a business entity, it might not be possible, or indeed desired, to reclassify assets in every case or in every sector of the economy. In some situations, however, the move may have a major influence on the profitability (let us call it apparent profitability), contradicting, in a way, the principle of a true and fair view. This is the subject matter of this paper.*

The paper was written on the basis of a critical analysis of legal regulations and case studies (financial documents and accounting policies) and a deductive method to show potential areas where business entities might manipulate information disclosed in financial statements.

Keywords: *reclassification of assets, measurement methods of value, true and fair view*

Introduction

The subject matter of accounting is identification of and connection between economic events and data registered on that basis and further communicated in financial reports [cf. Ijiri 1972: 446; Beaver 1998: 13; Misińska 2002: 138]. The accounting system is designed in the way so that it can inform the interested parties of the financial resources management process by describing the capability of a business entity to generate a stream of economic advantages, the risk related to the process and the efficiency of utilizing resources by a business entity. The unit used in the accounting measurement process is a monetary unit. Thus accounting evaluates economic events, assets and sources of funding, processes influencing the financial result by applying legally eligible value measurement methods (valuation). In the course of business activities it can make changes to the asset allocation. Reclassifications are often accompanied by a change in the measurement method, and the high initial amounts and/or revalued amounts may significantly impact the balance sheet total and the financial result. Especially, it comes to fixed assets. From the perspective of a business entity, it might not be possible, or indeed desired, to reclassify assets in every case or in every sector of the economy. In some situations, however, the move may have a major influence on profitability (let us call it apparent profitability), contradicting, in a way, the principle of a true and fair view. The aim of the present paper is to discuss the case of measuring assets after they have been reclassified and analyse the consequences of asset reclassification for the balance sheet total and the financial result of entities, particularly in the context of the need to provide a true and fair view of their standing.

1. Measurement methods used in accounting

The objective of accounting measurement is to determine the value of the assets held by an entity together with their funding sources, which also indirectly influences the entity's costs and profitability. As the entity may choose from among the measurement methods permitted by law, it has some leeway in the way its accounting system presents key information to internal and external customers. Its accounting policy should, however, clearly spell out the methods used to determine the value of specific items in the balance sheet. The methods chosen should be used consistently from one period to another for all assets of the same type instead of selectively[1]. The key objective of accounting to provide information requires that data disclosed to internal and external customers through financial statements conform to a certain standard in line with the principle of a true and fair view. The Accounting Act does not contain a list of such standard qualities, but it does impose the obligation to offer a fair and clear picture of an entity's assets

[1] The Accounting Act of 29 September 1994, Official Journal No. 121, item 591, as amended, art. 5, paragraph 1.

as well as its financial standing and result[2]. The International Financial Reporting Standards (IFRS), on the other hand, highlight the fact that financial reporting information is only useful for making business decisions when it is of good quality. The fundamental qualities of useful financial information are relevance and faithful presentation. Such information will be even more useful if it is also comparable, verifiable, timely and understandable [Conceptual Premises 2014: 7].

For years, the clear tendency in the measurement model adopted in the International Accounting Standards and the International Financial Reporting Standards has been to measure assets at present (market) value. Data presented in financial statements are brought closer to the present value by the category of fair value. Taking its cue from the solutions adopted in the IAS and the IFRS, the Polish Balance Sheet Law has also introduced a number of ways to better approximate the results of measuring assets and liabilities to their market value. These focus on shifting the emphasis from historical cost to fair value when making measurements. In addition, there is a group of businesses which are obliged by law to draw up their financial statements pursuant to the IAS and the IFRS and so they have to use the measurement model adopted in these documents directly.

According to the Polish Balance Sheet Law, the category of fair value is used for the following assets and liabilities:[3]

1) property and intangible assets held as investment – these may be measured at the balance sheet date in accordance with the rules put in place for fixed and intangible assets (i.e. at the cost of acquisition or construction or at the revalued amount) or at market price or otherwise established fair value,

2) shares in other entities (not held as short-term investment) and investment other than property and intangible assets – measured at the balance sheet date at acquisition cost less impairment losses or at fair value or adjusted cost if the asset has a maturity date. Impairment takes place when there is a good probability that the asset controlled by the business will not yield expected economic benefits in a significant part or as a whole. This justifies impairment write-downs to bring the book value of the asset to its net sales price or, the price missing, to an otherwise determined fair value. On the other hand, the adjusted acquisition price of financial assets and liabilities is the cost of the asset at which is was first recognised less any payments of the principal adjusted for the accumulated, discounted difference between the initial value of the asset and its value on maturity calculated using the effective interest method and net of any write-downs,[4]

3) short-term investment – measured at market value or at the lowest of acquisition cost or market value or at adjusted acquisition cost for the assets with

[2] Ibidem, art. 4, paragraph 1.
[3] Ibidem art. 28, paragraph 1-8a.
[4] Ibidem, art. 28, paragraph 8a.

a maturity date; short-term investments which are not traded in an active market are measured at otherwise determined fair value,

4) receivables and loans – at the amount due, with prudence,

5) liabilities – at the amount due.

In addition, receivables and loans held as financial assets as well as financial liabilities may be measured at adjusted cost of acquisition and, if the business intends to sell them within 3 months, at market value or otherwise determined fair value.[5]

The Accounting Act specifies that "fair value is the amount for which an asset could be exchanged or a liability settled between interested and knowledgeable parties in an arm's length market transaction".[6]

The words "could be" mean that the transaction is one which is hypothetically possible at the date of measurement. The expression "market transaction" lays down the condition that there should be no relationship between the (independent) parties whereby they could collude to set a price deviating from the market one. "Knowledgeable" parties will be such businesses whose management boards have sufficient knowledge of the transaction's object, the factors bearing upon the price and the market conditions at the date of measurement. Moreover, the transaction should be made voluntarily, motivated by business considerations and conducted in the best interest of each party [Engelgardt 2011].

Measurements made at fair value are supposed to contribute to a true and fair presentation of an entity's financial standing as opposed to measurements made on the basis of historical cost which, in a dynamically changing environment, quickly become obsolete. Hence, a correctly used fair value is to reflect the approximate market value and will be preferred by capital market players.

Consequently, measurement at fair value is used when measuring financial instruments, intangible assets and investment property, that is say those items whose initial amount and carrying amount (i.e. the amount measured at the balance sheet date) are often high. When businesses measure assets at fair value, they have the grounds to revalue these assets at the balance sheet date and, consequently, exert a major influence on the balance sheet total and the financial result. Selecting the measurement method it will use, a business should consider whether it will contribute to the true and fair presentation and identify the practical obstacles it may run against.

We should remember that, after fair value was incorporated into international regulations followed by the Polish Balance Sheet Law, it provoked concerns about the rationale of introducing estimates to accounting practice, a step treated as a violation of the principle of prudent measurement. After all, a business may revalue

[5] Ibidem, art. 28, paragraph 1.

[6] Ibidem, art. 28, paragraph 6.

the cost of acquisition to the market price or base its measurements directly on market prices which means that, for individual assets, it is possible to make measurements at fair value higher than the historical cost represented by the cost of acquisition or construction. Because it could be verified, measurement at historical cost reduced the potential for allegations of incompetent or intentional distortion of measurement results. In time, however, it ceased to ensure an adequate approximation of true values and users of financial statement stopped treating it as a credible source of information [Surdykowska 2001: 197].

We should also bear in mind that businesses could use asset reclassification to indirectly influence the measurement method adopted for these assets. When, once reclassified, an asset qualifies to be measured at fair value, the new measurement method can be applied to impact carrying amounts and the financial result.

In a nutshell, it is possible to reclassify assets held for investment (and vice versa) and carry out reclassifications of the investments themselves, i.e. reclassify short-term investments as long-term ones and vice versa.

2. Reclassification of tangible and intangible assets

Let us now consider the case of reclassifying tangible and intangible assets as investment. According to the Accounting Act, fixed and intangible assets used by en entity are measured at cost or at revalued amount less any amortisation write-offs and impairment losses.[7] Their reclassification as investment allows the business to measure them at market value or otherwise determined fair value. Where the market value is higher than cost, such reclassification will increase the balance sheet total and the financial result as the consequences of revaluation will be recognised in the financial result as income. But where the market value is below cost, the reclassification will result in measurements decreasing the balance sheet total and the financial result because the change will be recognised as cost.[8]

One obvious example of asset reclassification used to create the value of the balance sheet total and the financial result is provided by reclassifications in the property development sector. The nature of the business requires that developers have property in the form of land which may be used for investment projects or resold. The land owned by developers is classified as tangible current assets, i.e. work in progress and may be measured at historical cost of acquisition[9]. Again, if the intended use of such land is changed to classify it as investment property, it

[7] Ibidem, art. 28, paragraph 1.
[8] Ibidem, art. 35, paragraph 1, 3 and 4.
[9] Ibidem, art. 28, paragraph 11, point 1; art. 34, point 1.

may be measured at fair value. The consequences of reclassification and the new measurement (at fair value exceeding cost) will be disclosed directly in the financial result – as increase in the case of profits or decrease in the case of losses. At every instance, the practice will increase the profitability (let us call it apparent profitability) of the business.

3. Reclassification as part of investment

Pursuant to art. 35 of the Accounting Act, it is possible to reclassify long-term investment as short-term investment and vice versa. Let us consider a major component of investment at any business entity, that is financial instruments.

As it was mentioned Point 1 of the paper, an entity may measure financial instruments (classified as long-term investment) at their cost less any impairment losses or at market value or otherwise determined fair value. If long-term investment is measured under the fair value model the consequences of an increase in the market value of the investment will be credited to the revaluation reserve, whereas the consequences of falling prices will deplete the previously created reserve. Therefore, they will not influence the financial result, unless the consequences of falling prices exceed the previously created revaluation reserve. But when an entity reclassifies financial instruments as short-term investment, it will be able to recognise the consequences of their increased value as revenue in its financial result. Moreover, if the investment was revalued before with the consequences influencing the revaluation reserve, the amount of the reserve will also be disclosed as revenue. The consequences of falling prices, on the other hand, will be reflected as financial costs at the moment of reclassification, unless the investment was revalued before in which case they may only decrease the revaluation reserve or, again, be disclosed as costs (to the relevant extent). Hence, if an entity intends to improve its financial result, it can achieve the effect by reclassifying long-term investment as short-term investment when the market situation is good or keep long-term investment unchanged when the market is down. In the latter case, if revaluation reserve has already been created, a fall in investment value will not impact the entity's result at all.[10]

If an entity measures long-term investment under the cost model, any decrease in the investment's value at the balance sheet date should be adjusted for impairment losses. The consequences of such adjustments are accounted for pursuant to art. 3, paragraph 2, point 32 of the Accounting Act and disclosed in the profit and loss account as cost. The Act also provides for revaluing the cost of acquisition

[10] Ibidem, art. 35, paragraph 6.

to the market price at the balance sheet date (under art. 28, paragraph 1). In such a case, the change in value will be shown in the revaluation reserve.

Let us analyse the consequences of reclassifying long-term investment measured at cost as short-term investment. Where the cost is higher than the market value, reclassification as short-term investment will require a decrease in the value of the asset regardless of the method applied to measure short-term investment, which will also decrease the balance sheet total. Further, the consequences of such a reclassification will have to be shown as cost in the financial result. As the financial result would be diminished, the move could be deemed disadvantageous from the perspective of a business entity. If the cost is lower than the market price, reclassifications as short-term investment may be considered advantageous from the point of view of the entity as the increase in value will have a positive impact on the balance sheet total (which would also happen if investment stayed long-term) and improve the financial result (which would not happen if investment continued to be held as long-term).

Let us now consider the opposite situation when short-term investment is reclassified as long-term one. The change takes place pursuant to art. 35 of the Accounting Act. Financial instruments classified as short-term investment at the balance sheet date may be measured at market price or the lower of market price or cost of acquisition. When the market situation is unfavourable for an entity, for example due to falling prices of securities, this measurement method will decrease the value of assets and diminish the financial result as the consequences of the change will be recognised as financial cost.[11] But if they are reclassified as long-term investment, the entity may keep their cost of acquisition less any impairment losses. Recognising an impairment loss gives the entity more leeway to impact individual amounts presented in its financial statement because the amount of impairment is influenced both by the period in which the asset may be sold and the interest rate used to discount future cash proceeds.

However, if the entity reclassifies short-term investment as long-term investment measured at fair value, the consequences of a fall in investment value will diminish the value of assets and will have to be shown as cost in the financial result as it will not be possible to recognise them in the revaluation reserve, such reserve not having been created earlier.

Importantly, the very possibility of reclassifying financial instruments as well as the consequences of such a move must be checked against the Regulation of the Minister of Finance on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments as amended. Right at the outset,

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[11] The Accounting Act, changes in short-term investment prices.

it must be said that there is a discrepancy between the Accounting Act and the Regulation. The Regulation specifies the following financial instruments:[12]

- financial assets and financial liabilities held for trading,
- loans and receivables,
- financial assets held to maturity,
- financial assets available for sale.

The Accounting Act does not directly specify the categories mentioned in the Regulation. It defines financial instruments as a contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity, provided that the contract made between two or more parties produces clear economic consequences regardless of whether the performance of the rights or obligations under the contract is unconditional or conditional. It also points out that financial assets understood as monetary assets or equity instruments issued by other parties as well as a contractual right to receive monetary assets or the right to exchange financial instruments with another party under conditions that are potentially favourable are one of the components of investments which may be held by an entity.[13]

The Regulation does not directly define the category of financial assets available for sale, pointing out that they are other assets which do not qualify to be classified under other categories.[14] Neither does it classify the financial instruments in the list as short-term or long-term investment. It specifies the nature of financial assets held for trading and includes in this category assets purchased to obtain economic gain resulting from short-term price changes and fluctuations of other market factors or the short life cycle of the purchased instrument as well as other financial assets regardless of the intention at the time of concluding the contract if they are part of a portfolio containing similar financial assets, a portfolio which is highly probable to yield the expected economic benefits in a short term perspective.

Hence, financial instruments held for trading may be considered to be part of short-term investment. In light of the Regulation of the Minister of Finance of the 18th December 2008 amending the previous regulation, an entity may reclassify items previously held for trading as other categories, which was not possible before the amendment. Pursuant to art. 6, paragraph 4, reclassifications are justified

[12] Regulation of the Minister of Finance of the 12th of December 2001 on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments, Official Journal No. 149, item 1674, art. 5, paragraph 1.

[13] The Accounting Act of 29 September 1994, Official Journal No. 121, item 591, as amended, art. 3, paragraph 1, point 17, 23 and 24.

[14] Regulation of the Minister of Finance the 12th of December 2001 on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments, Official Journal No. 149, item 1674, art. 9.

only by extraordinary circumstances understood as circumstances resulting from a one-off, extraordinary event which is highly unlikely to recur in the near future. This means that, both in the Act and the regulations discussed, it is possible to change the intended use of financial instruments by reclassifying them from short-term to long-term investment.

Financial assets reclassified pursuant to art. 6, paragraph 4 and 5 of the Regulation should be measured at fair value established at that date. The fair value at the date of reclassification becomes the new cost of acquisition or adjusted cost of acquisition, respectively. Profit or loss from revaluing reclassified financial assets stays in the profit and loss account.[15] The fair value of financial instrument thus reclassified will be obtained through:[16]

– measuring the financial instrument at the price established when trading in an active, regulated market, information about the price being publicly available,

– estimating debt instruments by a specialised, independent body providing such services, provided that it is possible to provide a fair estimate of cash flows related to such instruments,

– applying a correct model to measure the financial instrument, provided that the input data for the model come from trade in an active, regulated market,

– estimating the price of a financial instrument for which there is no active, regulated market on the basis of a publicly announced price at which a materially similar financial instrument is traded in an active, regulated market or the prices of assets in a compound financial instrument,

– estimating the price of a financial instrument through commonly recognised estimation methods.

Measurement is not made at fair value and can be based on the cost of acquisition only if it is not possible to determine the former in a credible way and if there is no market price established in an active, regulated market.[17]

Conclusions

The conclusion to draw from the above reflections is that if the principle of a true and fair view is to be observed in a situation where business entities

[15] Ibidem, art. 22a.

[16] Regulation of the Minister of Finance of the 19th of December 2005 amending the regulation on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments, Official Journal No. 256, item 2145, 2146, art 1, paragraph 5.

[17] Regulation of the Minister of Finance the 12th of December 2001 on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments, Official Journal No. 149, item 1674, art. 14, paragraph 2.

reclassify and revalue assets, their accounting policies must clearly specify asset measurement methods – especially in the case of financial instruments – and the adopted methodology of classifying assets into the four basic categories mentioned in the Regulation of the Minister of Finance on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments. A business entity should also describe the rules it follows to classify financial instruments as long-term or short-term investment. What is also very important for the correct interpretation of data disclosed in financial statements is the additional information provided by entities on disclosures of revaluations together with their causes and consequences. The scope of such disclosures is specified in the Regulation of the Minister of Finance on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments as amended. However, there are no Polish regulations which provide for disclosures of other revaluations. The matter is regulated in a general way by art. 48 of the Accounting Act.

When assessing financial statements for their fairness and credibility, particular attention should be paid to the following elements:

– first, whether assets were revalued at the balance sheet date,

– second, what was the reason for the revaluation (if it did take place). A change of value should result from a change in market conditions, which would be in line with the essence of the fair value concept,

– third, what was the scale of revaluation compared to the initially recognised amount,

– fourth, on what basis was the fair value determined,

– fifth, what are the consequences of such revaluation (which means analysing it from a wider perspective against the results of the entity as a whole). The reason is that reclassification of assets and their revaluation might be a way of manipulating financial reporting information.

This raises the question of whether a recipient (user) of information generated by the accounting system is able to assess it in the way presented above.

Given the mechanisms described and the requirements to be met in order to observe the principle of a true and fair view of an entity's standing, what seems to be of key importance is the role of a statutory auditor. It should be his job to verify whether the information disclosed by an entity is sufficient to correctly evaluate the data in its financial statement.

References

The Accounting Act of 29 September 1994, Official Journal, No. 121, item 591, as amended.

Beaver W.H., 1998, *Financial Reporting: An Accounting Revolution*, 3rd ed., New York: Englwood Cliffs.

Conceptual Premises for the Drawing Up and Presentation of Financial Reports, Complete Picture. A Practical Guide to the IFRS, Infor Biznes, Warsaw 2014.

Engelgardt E., 2011, Rola wartości godziwej w procesie pomiaru wartości (Role of Fair Value for Value Measurement), *Finanse, Rynki Finansowe, Ubezpieczenia*, No. 32, *Rachunkowość w teorii i praktyce* (*Research Bulletin of the University of Szczecin. Publications of the Chair of Accounting*, No. 32, *Accounting Theory and Practice*), Szczecin, ed. T. Kiziukiewicz.

Ijiri Y., 1972, The Foundationsof Accounting Research, *The Accounting Review*, Supplement to vol. XLVII.

Misińska D., 2002, Wycena zdarzeń gospodarczych (Valuation of economic events), *Zeszyty Teoretyczne Rachunkowości* (*Theoretical Journal of Accounting*), No. 8(64).

Regulation of the Minister of Finance of the 12th of December 2001 on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments, Official Journal No. 149, item 1674.

Regulation of the Minister of Finance of the 19th of December 2005 amending the regulation on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments, Official Journal No. 256, item 2145, 2146.

Regulation of the Minister of Finance of the 18th December 2008 amending the previous regulation on the detailed rules for the recognition, measurement, disclosure and presentation of financial instruments, Official Journal No. 228, item 1508.

Surdykowska S.T., 2001, Niektóre aspekty wprowadzenia wartości godziwej do polskiego systemu rachunkowości rozważane w międzynarodowym kontekście (Some Aspects of Introducing Fair Value to the Polish Accounting System Seen in the Context of International Practice), *Zeszyty Teoretyczne Rachunkowości* (*Theoretical Journal of Accounting*), No. 4(60).

Zmiana przeznaczenia składników majątku a zachowanie zasady wiernego i rzetelnego obrazu jednostki gospodarczej

Streszczenie. *Jednostki gospodarcze wykorzystują w procesie gospodarowania składniki majątku w różnej postaci: rzeczowej, niematerialnej i finansowej. W toku prowadzonej działalności jednostka może dokonywać zmian przeznaczenia składników majątku. Zmiana przeznaczenia składników majątku związana jest często ze zmianą metod ich wyceny, a wysoka wartość początkowa lub/i wartość po przeszacowaniu mogą w istotny sposób wpływać na poziom sumy bilansowej oraz wyniku finansowego. Dotyczy to w szczególności składników majątku trwałego. Zmiana taka może w przypadku niektórych jednostek czy też branż w istotny sposób wpływać na poziom rentowności (nazwijmy ją pozorną) i w pewnym stopniu pozostawać w sprzeczności z zasadą wiernego i rzetelnego obrazu. Zjawisko to jest przedmiotem niniejszego artykułu.*

Przygotowując artykuł, posłużono się krytyczną analizą aktów prawnych oraz analizą przypadku (dokumentów finansowych wraz z polityką rachunkowości) i metodą dedukcji, wskazując potencjalne obszary, w których jednostki gospodarcze mogłyby dopuszczać się manipulacji informacjami przekazywanymi w sprawozdaniach finansowych.

Słowa kluczowe: *zmiana przeznaczenia składników majątku, metody wyceny, zasada wiernego i rzetelnego obrazu*

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Cost analysis of human labour and the elimination of waste from the work standardization perspective

Abstract. *The starting point for definition of the costs of a product (a physical item or a service) in each company is the analysis of direct costs, and especially, the costs of material and human labour. Identification of the costs of direct labour is based on the development of technical work standards of manufacturing of one piece of product. Well defined time standards are the basis for the correct work division within each organizational unit, and rational organization of the work process, resulting in decreased cost of labour*

Keywords: *cost of labour, waste (muda) elimination, Kaizen, work standard, MTM methodology*

Introduction

Karol Adamiecki – the worldwide known management theorist at the beginning of the twentieth century, wrote that “although we manage an inexhaustible supply of time, which itself costs nothing, it is one of the most expensive ‘materials’, which we use when manufacturing industrial products. It would seem that anyone, anyone who is engaged in productive work, should feel and understand its value, but if we look closer at technical-industrial economy, we will see that with none kind of material or energy we deal as uneconomically as with time” [Martyniak 2001: 35]. Though time has passed, this words are still accurate and management of the most valuable and resource which is time still lacks managers' attention.

The starting point for the definition of the cost of a product (a physical item or a service) in each company is identification of direct costs, including costs of materials and human labor. The aspect especially important is the opportunity of the cost definition (identification) and decrease. Definition of costs of direct labor is an important element of production costs analysis, based on the development of technical work standards referred to one product. This is the problem particularly important in those cases, where the share of direct labor in the cost of production is relatively high. Objectively defined labor standards result in proper organization and pace of work, and contribute to the full utilization of production capacity of people, machines and tools, and in many cases also to better utilization of materials and resources. Hence, giving the right rank to issues related to work organization and its standardization in the company contributes not only to reduction of the cost of direct labor, but also of the cost of materials and other costs of production [Kurek et al. 1974: 13].

1. Work standardization versus production costs

1.1. Costs of labor definition

In everyday life, a cost is the term used widely and having an extensive meaning. However, in the area of cost accounting it has a very specific meaning and is the term strictly defined. The cost is a necessary consumption of resources of business entity (materials, raw materials, work, equipment, machinery, buildings) by predefined processes of transformation performed in order to achieve a particular useful effect (a product meeting the requirements and needs of the customer) expressed in terms of value (in monetary units).

The cost of production can be referred to as funds that have been spent on the realization of the manufacturing process (of a product or a service). The realization of the production process comprises the following phases: from market analysis, through design, procurement processes, manufacturing, maintenance, to distribution and sales processes. Three basic methods can be applied for determining the costs of production, namely the indexing calculations, cost-plus pricing and calculation of the cost of operations. The production costs are a different category compared to the price of the product [Matuszek et al. 2011: 117]. Price of the product is shaped by the market, but also by the pricing policy of the company, while production costs are related mainly to the material used for production (material costs), production methods, the scale of production, labor costs, or organizational effectiveness and efficiency of the company.

The condition for maintaining the competitiveness of the company in the market is to maintain the sales price higher than the cost of production (including profit). Hence, one of the most important issues of the analysis of production process is to determine the cost of the production process and its components. Each production process can be divided into activities related to manufacturing of products (activities, operations, actions), for which the realization costs are defined. Cost of production simply consists of the sum of the costs of activities related to its execution [Matuszek et al. 2011: 113].

The division of costs into two categories, namely direct costs and indirect costs [see Warnecke et al. 1993: 49] plays an important role in each business. Full knowledge of the direct and indirect costs allows their responsible and reasonable shaping. Direct costs in the company are the operating costs, which can be assigned to a specific costs driver, eg. a product (group of products), an individual product, a service, a separate phase of business. Classically calculated direct costs include the costs of materials and processing costs (the cost of direct labor and overheads, the direct cost of energy consumed, the cost of utilization and/or wearing of special tools). The formula for calculation of direct costs makes it the product of the number of units of resources used and the cost of the unit of a resource, hence, for example, direct labor cost is calculated as the product of cycle/lead time (standard time to complete one piece of product) and the cost of one hour of human labor (wages). Indirect costs are complementary to the direct costs. They differ from the direct costs with the fact that they cannot be directly related and calculated with individual cost drivers (products), but the calculation is based on predefined allocation keys, which in a proportionate way divide the costs and assign them to the individual cost drivers.

The labor costs represent usually the major share of cost of producing the product (next to the cost of materials).The share of labor cost in total cost of production depends on the amount of time required to complete the product, and therefore of labor standards(standard time).The standard of work – based on a rational approach to the work analyzed – determines the execution time that is usually much shorter than the standard that has been set in the conditions of disordered organization. Thus, rationalization of working methods allows to determine the optimal labor standards, while the application of such standards creates conditions for increasing productivity. The less time included in the standard and the higher the performance, the smaller the share of labor cost in the cost of product, and thus the lower cost of the product. The application of rational working standards is usually associated with an increase in the efficiency [Mreła 1965: 253-254].

1.2. Labor standards

The essence of production management in every enterprise is a well-organized human labor. If human labor is poorly organized, it leads to pointless consumption of both means of production, and resources of the enterprise, including human labor, not bringing the effects commensurate with the investment. One of the primary factors of business management, rational organization of work and the starting point for calculation of production costs is the technical standardization of work, which is determining the optimum effort for the task execution in specific economic and technical conditions. Practically speaking, the work standardization can be applied to calculate the labor standard, that is, the amount of time necessary and sufficient for the execution of a specified operation by the employee (or a team) [Kurek et al. 1975: 10] in the given and most rational organizational and technological condition [Mreła 1975: 256]. And these conditions are as follows [Mreła 1975: 256]:

– rationally – economically and technically-designed division and course of the technological process, adapted to the means of production held and to technical requirements predefined for the manufactured product and intended for the operation,

– purposeful selection of basic equipment of work station and working conditions, devices and tools, providing achievement of a fully efficient operation and lowest cost of production, whilst complying with the qualitative conditions to be met by the manufactured product,

– the best possible workplace organization, understood as a specialization of workstations and equipping them with all the necessary auxiliary equipment, proper allocation of means and objects of labor and the allocation of employees, as well as selection of the best operating system for workstations,

– the optimum method of execution of the work by an employee, by which the correct order of operations and movements of the worker, the harmonized work of both hands etc. is meant, ensuring maximum utilization of working time,

– selection of an employee representing proper qualifications and skills,

– providing employees with any general conditions that will enable their efficient operation when performing a specific task, ie. for example determining the necessary time for physiological needs and including it into the standard time.

Definition and continuous analysis of labor standards(standard time) provides the data necessary for proper assessment of the organization of work, establishing conditions for further growth in productivity, assessment of cost of production, improvement of enterprise management, improvement of working conditions and elimination of waste in the process.

2. Elimination of waste

2.1. The Kaizen idea and the types of wastes

In Japanese "Kaizen" means continuous improvement, which applies to all, both managers and employees. Kaizen is a philosophy of management, in the center of which there is a continuous, systematic and implemented step by step improvement that takes place with the involvement of all employees [Grzelczak 2009: 40]. It is also a tool for individual workers to organize and manage their own work, leading to standardization which introduces reproducibility and order in the work performed. As a consequence this allows employees to identify problems easily and develop appropriate solutions [Pawłowski et al. 2010: 29].

According to the concept of Lean Management, company's objective is to seek to identify and completely eliminate or at least minimize any activities that do not add value to the product or service. According to P. Drucker, "there is nothing more senseless than the smooth implementation of the operations, which should not be performed at all" [Miller 2006: 93]. Activities generating value added for the customer are those for which the customer is willing to pay, and any action non-value adding from the point of view of the customer and operations absorbing too much of the resources in relation to the effects and the values they generate, are considered waste [Sobańska 2013: 40]. Taiichi Ohno (1988) lists seven types of waste (in Japanese "muda") [Grzelczak 2009: 41; Sobańska 2013: 40-41; Golińska-Dawson et al. 2015: 3].

Unnecessary transport is due to too long distances between the various stages of the production process. Thus, movement of materials, WIP and finished goods requires the involvement of means of transport, which is associated with additional costs, loss of time and generating damage during transport process.

Waiting times are associated with the occurrence of the "bottlenecks." In this case, employees are not doing their work, as they are unproductively waiting for the components coming from the previous production phase, and waiting does not bring added value.

Overproduction is the result of production planning that predicting the level of defects, absence of employees or equipment malfunctions, programs the level of production higher than what the market demands.

Improper processing is the result of poor design of production lines or incorrect selection of the technologies used, and also extends the working time required to produce a particular finished product. Production and repair of defects are associated with advanced automation of production processes and are the result of producing the batch of defective products. Repairing such products generates high costs, employs people without adding value from the customer's perspective.

Surplus inventories are closely linked with the problem of overproduction. Finished goods, work in progress or materials remaining in the company as inventories do not provide any value, what is more – generate high storage costs, as well as cause the funds freezing (cost of capital).

Unnecessary movements are due to poor organization of production and jobs. Operators working in such conditions carry unnecessary movements and needlessly move parts or components, without adding any value with these activities.

In addition to these seven types of waste, there is the eighth category which is incorporated more and more often, namely the one relating to the human factor – under-utilization of the potential of employees [Golińska-Dawson et al. 2015: 4].

2.2. Elimination of waste in a contemporary company

In order to see how the concept of Kaizen is seen in practice, the research was conducted to show the importance of this management concept for the company. The research was conducted with use of a questionnaire. The population analyzed consisted of employees in the Wielkopolska region (Poland). The sample size was 1200 people, and the responses obtained from 1050 respondents were analyzed. The sampling method was random, and the study was conducted in March and April of 2015.

The first question concerned the assessment of the significance of the types of waste above listed for a contemporary company. The results are shown in the diagram (Figure 1).

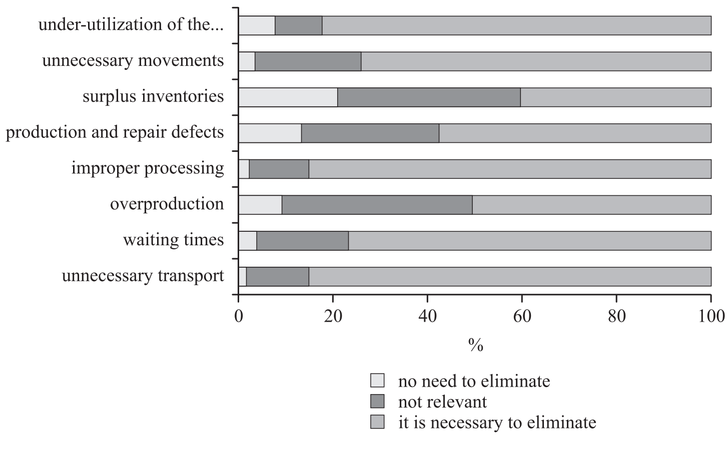


Figure 1. Importance of waste types for employees ($N = 1050$)

Source: own study.

According to the results of the research, the respondents believe that the most important type of waste that needs to be eliminated in contemporary companies is unnecessary transport (84.57% of responses "necessary to eliminate"), as well as improper processing (84.48%) and under-utilization of the potential of people (82.19%), followed by: unnecessary movements and waiting times. The fact that such a large percentage of respondents (almost 40%) indicates the types of waste that are not relevant to contemporary companies, and they are: overproduction (39.81% of responses "does not matter," and 9.90% "no need to eliminate"), excessive inventories (38.38% and 21.24%) and defects and their repair (29.04% and 13.81%) is worth noticing. This may indicate either a lack of awareness of the hidden type of waste or the fact that many companies have already eliminated these losses, using the principles of JIT and TQM.

The second question was the identification of the type of waste, elimination of which is the most important for the company, which employs the respondent. The results are shown in the chart (Figure 2).

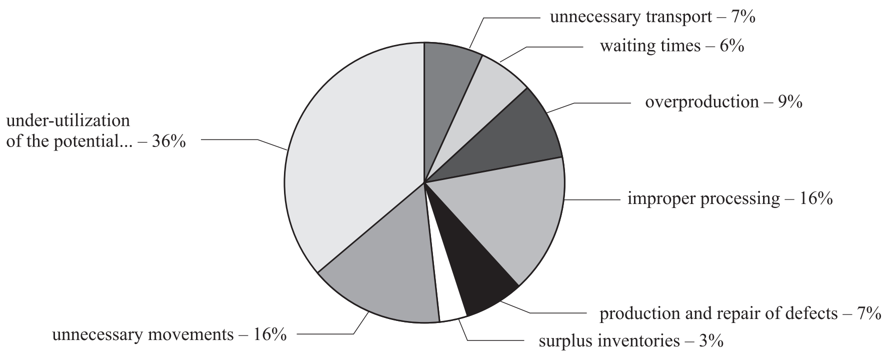


Figure 2. The most important type of waste according to employees (N = 1050)

S o u r c e: own study.

Analysis of the results obtained leads to the conclusion that the most important type of waste to be eliminated in the enterprise is under-utilization of the potential of employees (16% of respondents indicated that type). The research therefore confirms the thesis so important these days when so much attention is paid to the qualifications and competences of employees. In the coming years learning organization will be gaining its importance, resulting in greater attention of managers paid to the use of the capacities and knowledge of workers.

On the second place, according to employees (16%), there are two types of waste, namely unnecessary movements and improper processing. Obviously, these two factors in great extent contribute to the size of cost generated in a company.

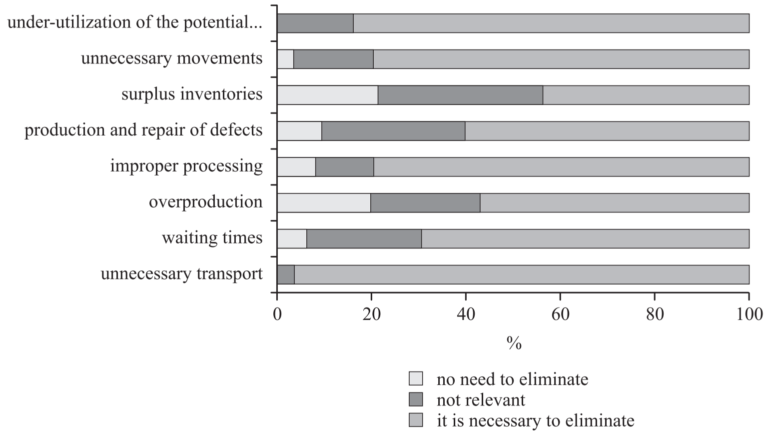


Figure 3. Importance of waste types according to respondents employed in production companies ($N = 279$)

S o u r c e: own study.

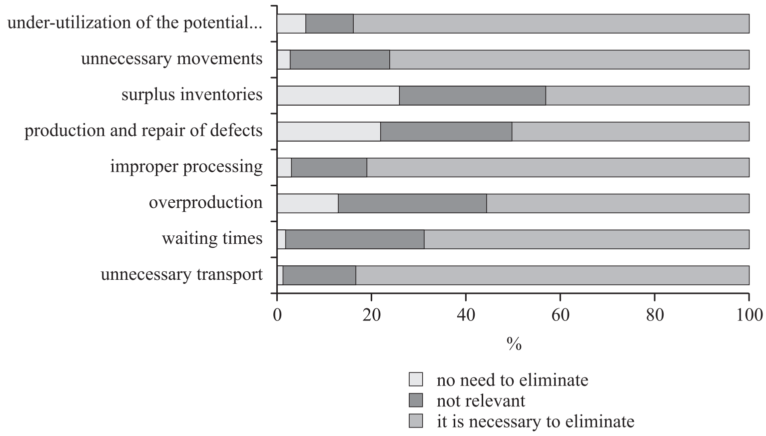


Figure 4. Importance of waste types according to respondents employed in trade and services companies ($N = 533$)

S o u r c e: own study.

Unnecessary movements (even in micro scale, referred to elementary movements) and improper or unfitting processing method result in elongation of working time (work standard) for each individual task (single operation time), which in consequence influences the increase in direct labor costs. The shorter the time defined

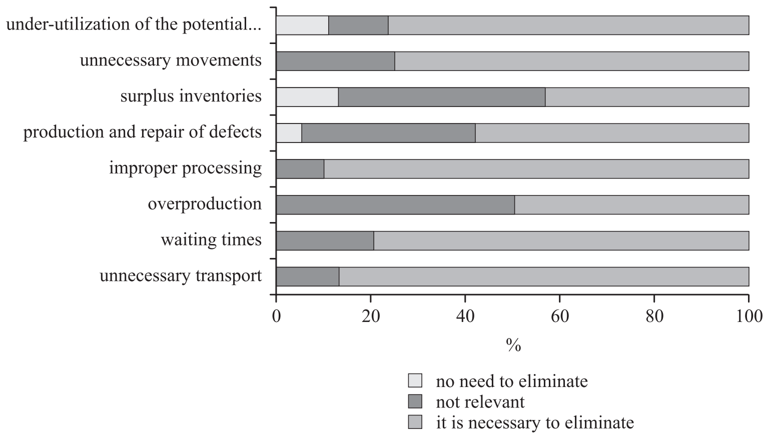


Figure 5. Importance of waste types according to respondents employed in administrative units ($N = 160$)

S o u r c e: own study.

in work standard, the lower the labor cost compared to product (service) cost, and finally the lower product (service) cost itself [see Mreła 1975: 254].

The data analyzed was divided according to the function criterion. The following groups were identified: the results which were obtained from respondents who work in production, trade and service and administrative units. The results are shown on the next three graphs (Figure 3, 4 and 5).

Analyzing the detail data obtained on the basis of research on various fields of activities of the surveyed companies, the consequence is noticed. Namely, according to employees of manufacturing companies, the most important type of waste that must be eliminated is unnecessary transport (96.41% of responses) and under-utilization of the potential of employees (83.87%), followed by unnecessary movements (79.57% of responses), and improper processing (79.57%). Research suggests, therefore, the need for working routines optimization. And here comes the huge field of possibilities for improving the work – and thereby eliminating waste – with the use of methods of testing and standardization of work.

The same research conducted among employees of trading and service companies also indicates that the most important type of waste to be eliminated is the under-utilization of the potential of employees (83.45% of indications that it is necessary to eliminate), unnecessary transport (83.10%) and improper processing (81.03%). In the opinion of respondents for three following factors: excessive inventories (25.86% of responses), defects and their repair (21.89%) and overproduction (13.38%) do not have to be eliminated, which results from the nature of the trade and service companies surveyed.

The results of the survey conducted among employees of administrative units show that the most important type of waste, which is necessary to eliminate is the improper processing (90.00% of responses), unnecessary transport (86.88%) and waiting times (79.38%). Hence, the conclusion is that not only in manufacturing but also in administrative units and trading and service companies measures must be taken to analyze the organization of human labor and the use of working time, probably because there are enormous reserves hidden, where waste can be transformed into the value added. In the opinion of respondents the three following factors: the overproduction (50.00% of responses), excessive inventory (43.75%) and defects and their repair (36.25%) do not matter, because of the nature of administrative operations.

3. Decrease of labor costs with MTM methodology

3.1. Analysis and standardization of work as a work organization improvement factor

One of the key factors to improve the organization of work is technical standardization of work, i.e. the determination of the optimal effort to perform a working task in certain organizational and technical conditions. Practically speaking, the standardization work is a set of actions leading to the determination of labor standards, which is the amount of time necessary and sufficient so that a specified operation was performed by the employee (or a team) [Kurek et al. 1974: 10]. This is done by analyzing the relationship between the various components of working time and work organization and working methods, the characteristics of the technological process and workstations equipment, as well as taking into account the principles of ergonomic design of workplaces. At the same time standardization of work provides an output data necessary to [Kurek et al. 1974: 10-11]:

– proper assessment of the level of organization of work,
– determining the conditions and possibilities for further improvement of labor efficiency,
– assessing the level of costs of production,
– improving the management organization,
– improving working conditions,
– developing and applying appropriate motivation and incentives to employees.

The standard technically justified does not mean subordination of humans to technical requirements of a job. On the contrary: the process of normalization takes into account the biological and psychological capabilities of a man and the social objectives of the production company. The condition for the definition and implementation of appropriate labor standards is the optimization of the operating conditions in terms of organization, technics and ergonomics on individual workstations. Introduction of labor standards is reasonable only on the basis of the completed improvements. The introduction of appropriate labor standards does not mean the end of the process of improving the organization of work and production. Analysis of time standards meeting in terms of technical and organizational progress and the growth of qualification paves the way for further improvements in terms of organization, and technical and ergonomic aspects for individual workstations [Kurek et al. 1974: 11-12].

The attempts to improve human labor are focused on decrease of unit product or service cost and are always associated with necessity of analysis of the unit concerning its present or future functioning (designed work). Humans have always been striving for minimization of work efforts, starting with developing proper work conditions and improving technical aspects of work. Subsequently, as mechanization and automation were developed and work division deepened while work became more complex, the need to organize, plan, motivate and control (measure) work emerged [Słowiński 2008].

3.2. The MTM method introduction

Methods of times and elementary movements management are based on the standards to be fixed in advance. These standards are derived from the study of movement of limbs and eyes, and are made up of the elements lasting a fraction of a second. With these elements operations are built as with the building blocks. This is the analytical standard, which is very labor intensive. Methods of elementary times and movements can be applied to research on and plan an appropriate workplace organization and the organization of the implementation of the work itself. These methods are united in an element of movement and time. They are based on the finding that, when considering manual work, there are some specific elementary movements which combined in various way create every job. The division of work movements into elementary movements is just a starting point for these methods. Working movement is a short, introverted motion sequence, which in typical form occurs frequently and directly affects the course of work, or any action. Whereas the elementary movement is isolated part of the movement, which independently of the work is the result of the mechanics of the human body. F.B. Gilbreth on the basis of his experience established 17 elementary movements called – from an anagram of his name – therbligs [Wyrwicka, Grzelczak 2010: 23-25; Grzelczak 2013: 65-66].

Among the family of methods of elementary standards, the MTM method (Methods-Time Measurement), has gained the greatest popularity. This approach is based on the assumption that the time required to carry out a particular job depends on the method chosen for the implementation of activities. In short: the chosen method determines the time. MTM method was applied for the first time in 1948, and later modified several times. Its authors (H.B. Maynard, G.J. Stegemerton and J.L. Schwab) took as a basis [MTM 2004: 45-47]:

– 8 elementary hand movements: reaching, grasping, moving, combining and releasing(elementary and the most common movements, representing 70-80% of the entire course of work) and pressing, separating and rotating,

– 2 visual functions: visual shifting and controlling,

– 9 movements of the body (legs and trunk), including the movement of the feet and legs, body movements with shifting and tilting the axis of the body.

Time values are determined on the basis of the movement analysis with the movie in the specific production conditions. The unit is TMU (Time Measurement Unit) which is equal to 1/100 000 part of an hour (0.036 seconds).

Work processes are, with the use of the MTM method, decomposed into elementary movements necessary for its implementation. For each elementary movement there are, depending on the input, the times set (units of time), from which it is possible to make a working method. Determinants for each elementary movement give specific attachment points for the development of methods of work and work processes, as well as jobs. Through a detailed analysis of the work tasks MTM method specifies the time, manner and quality of the work, thus giving a complete picture of the method of execution, together with a careful determination of the value generating activities, showing its bottlenecks, and indicating the direction of optimization. Analysis enables accurate determination of the optimization potential of the area. With MTM method it is possible to identify and implement opportunities to develop the entire value chain. MTM tools allow to determine the best methods of execution, which allows for maximizing productivity by simplifying or eliminating elementary movements which do not generate added value [Wyrwicka, Grzelczak 2010: 25; Grzelczak 2013: 67].

3.3. Elementary movements time and its shortening with MTM method

An important element of the elimination of waste in the workplace (and thus in the whole enterprise) is designing the correct spatial relations at the workplace, or to provide working man in convenient reach of the work (work area) and in a convenient position of the body so that he/she can traverse freely and without undue effort, and thus without fatigue, safely and efficiently [Pacholski 1986: 110]. In the method of elementary movements the goal of shaping the course of movement is to find their simpler counterparts, ie. less aggravating and tiring, and to dense the movements by switching to two-handed operation, which is perceived by the employees as a more rhythmic and more enjoyable. A characteristic feature of the use of MTM in enterprises is a growing trend to non-investment rationalization, or improving the conditions of work systems at relatively low costs of investment for application of equipment, tools and other means of production, which is designed to reduce the burden of worker [MTM 2004: 367].

Taking movements (reaching, grasping and letting go) in the method of elementary movements depend primarily on the length of the movement, case of the movement and the type of course of the movement. A simplification of these movements is achieved by reducing the size of influence, which means that movements taking more time are to be converted into less time consuming.

Movement length reduction is achieved by pulling up (reducing the distance) to the objects of labor and tools to the site of action. For example, reaching a distance of 65 cm to the subject lying separately (traffic code R65B) requires 22.6 TMU time, and reaching for the same object lying at a distance of 30 cm (R30B) requires only 12.8 TMU. The reduction here is almost by half. Length of movements should be reduced enough to keep their natural rhythm. Too short movements lead to one-sided burdening and early fatigue of an employee.

Analyzing the impact of a case of a movement, which is attention needed (concentration) during movement, the opportunities to simplify the movement are also sought for. In case of a stretching movement at the same distance (for example. 30 cm) there are five options of movement with the following time relation:

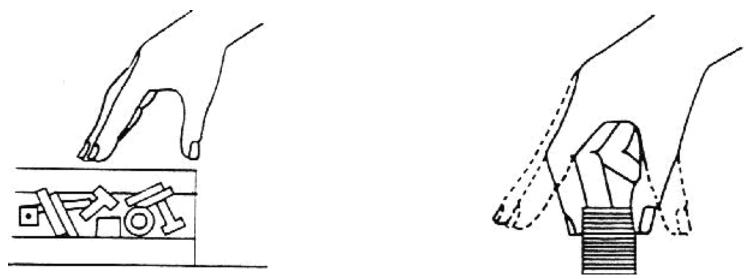
– "A" case – slight intensity of attention, the object is always in the well-defined place (code R30A) – 9,5 TMU time, taken as the base (100%),

– "B" case – moderate intensity of attention, the subject is separated (R30B) – 12.8 TMU time (135%),

– "C" and "D" cases – required attention, item mixed with some other objects (R30C) or small object (R30D) – 14.1 TMU time (148%),

– "E" – low intensity of attention, moving hand in the unmarked position (R30E) – 11.7 TMU time (123%).

The simplification of the stretching movements is by transforming the movements C and D into the B or A. This can be done by making use of the forwarding mechanisms or defined location of the parts. The case "D" concerns the movement for very small or difficult to handle objects, thus suitable configuration of an object could be helpful. A similar situation exists in the case of capture movement. A significant factor influencing the elementary movement of capture is the way of grasping, which results in the time required for movement (Figure 6).



Selective grip-grip
of an item mixed with others
G4 = 7,6 – 12,9 TMU

Lifting grip-grip
of an isolated object
G1A = 2,0 TMU

Figure 6. Comparison of times required for grasping movement

S o u r c e: [MTM 2004: 67].

Selective grip of the object mixed with other objects (G4) is four times more time-consuming than grabbing separately lying object (G1A grip). Grips G4 can be converted into G1A and G1B cases through the use of gripper containers. Time saved is particularly evident when eliminating selective grip while doing ambidextrous activities. Sometimes grips G1 or G4 can be converted into the G5 (touching grip) by depositing parts and configuration of delivery device, allowing the ejection of individual items. The attention should also be paid to the correct location of the clamshell containers including the reach zones and the principles of economics of working movements.

In the case of placing movement (moving, combining) a method of elementary movements the movements simplifying can be achieved by similar methods as in the case of taking movements. Moving movements are affected by the size of force necessary, that must be reduced/eliminated especially in those cases where it leads to static load of an employee and occurs repeatedly. This can be accomplished by the use of cargo supporting equipment and the transport equipment.

Values that affect the elementary joining movement are: fitness class, symmetry conditions and manipulation. Simplifying this type of movement is always bound with the product shaping. Switching accuracy can be reduced by larger tolerance (clearance between the joined objects), the use of chamfer, restriction of movement (the guide rail, the use of the stop), or even elimination of the joining movement. The possibility of reducing the time by the symmetry conditions is to change the structure of the items to be combined. For example, combining objects with square profile (traffic code P2SSE) takes time of 19.7 TMU, and the same movement for the items of circular profile (P2SE) requires only 5.6 TMU (time savings of nearly 75%).

3.4. Principles of movements economics and their influence on elimination of wastes with MTM method

Principle of movements made by a man economics can be reduced to such an organization of work in order to avoid unnecessary movements so that the path of necessary movement was as short as possible and that the movements followed each other in an optimal way in terms of the order, certainty and difficulties. These principles were formulated in 1911 by F. and L. Gilbreths and developed by R.M. Barnes. They can be divided into three groups [Mreła 1975: 55-58]:

– rules on human work (selection of movements), based on maximum utilization of potential of the human body,
– rules on the workstation,
– rules for the selection of tools and equipment.

Standardization of work methods consistent with the principles of elementary movement economics is focused on the execution of a task with a minimum number of moves, the least time-consuming, carried out simultaneously with both hands. These rules apply to the organization of work using the MTM method and is based on the following assumptions:

– simultaneity of movements – developing working methods in such a way that the work was carried out with both hands at the same time taking into account all the principles of ergonomics,
– simplification of movements – seeking to ensure that the necessary elementary movements were the least time-consuming to make,
– reduction of unnecessary movements – is to eliminate unnecessary movements that do not add value to the process; repeated move of taking and hanging up the same part can be the example,
– shortening the distance for movements of grabbing and moving – by creating the optimal position and working methods, combined with the principles of ergonomic design of work.

Conclusions

The goal of each business activity is profit. One of the ways to reach the most benefits is cutting down the cost. In the following paper, the author focused on the issue of direct costs of labor and their relations to standards (and in the same time standardization) of work. Waste elimination was presented as the basic task within the cost decrease area. The research proved that the most important type of waste, according to employees of various companies – next to under-used potential of employees – are unnecessary movements of employees and incorrect processing (methods of work), which are the results of the lack of standardization. To eliminate this type of waste at the workstation, various techniques of work analysis and standardization can be applied. Working time standards defined in the objective way are the basis for the correct work division within each organizational unit and rational organization of work processes result in decrease of costs of labor. Standards are the best way to develop objective criteria for planning, organizing and controlling all the activities, and especially production process. Hence, work standardization has the key role in managing the entire company and human labor as well. Attempts to improve human labor, striving for decrease of unit product or service cost result in decreasing cost of direct labor, and as a consequence, cost of product.

References

Golińska-Dawson P., Kosacka M., Werner-Lewandowska K., 2015, How to find a potential for improvements? – Muda checklist as a lean tool for manufacturing companies, *Logistyka*, No. 2.

Grzelczak A., 2009, Ciągły proces ulepszania metodą optymalizacji procesów produkcyjnych, in: M.K. Wyrwicka (ed.), *Marnotrawstwo. Przejawy i sposoby minimalizacji*, Poznań: Wyd. Politechniki Poznańskiej.

Grzelczak A., 2013, *Projektowanie procesów pracy*, Poznań: Wyd. Politechniki Poznańskiej.

Kurek S., Lach J., Pronobis L., Grzeszczuk A., 1974, *Metodyka technicznego normowania pracy. Poradnik*, Blachownia: ODKKiS.

Martyniak Z., 1996, *Metody organizowania procesów pracy*, Warszawa: PWE.

Martyniak Z., 2001, *Organizacja i zarządzanie. 70 problemów teorii i praktyki*, Kraków – Kluczbork: Oficyna Wydawnicza Antykwa.

Matuszek J., Kołosowski M., Krokosz-Knypke Z., 2011, *Rachunek kosztów dla inżynierów*, Warszawa: PWE.

Mikołajczyk Z., 2001, *Techniki organizatorskie w rozwiązywaniu problemów zarządzania*, Warszawa: WN PWN.

Miller K., 2006, *We Don't Make Widgets: Overcoming the Myths that Keep Government from Radically Improving*, Governing Books.

Mreła H., 1975, *Technika organizowania pracy*, Warszawa: Wiedza Powszechna.

MTM, 2004, *MTM – Metoda podstawowa*, Hamburg: Deutsche MTM-Vereinigung e.V.

MTM, 2004, *MTM – Metoda UAS*, Hamburg: Deutsche MTM-Vereinigung e.V.

Pacholski L. (ed.), 1986, *Ergonomia*, Poznań: Wyd. Politechniki Poznańskiej.

Pawłowski E., Pawłowski K., Trzcieliński S., 2010, *Metody i narzędzia Lean Manufacturing*, Poznań: Wyd. Politechniki Poznańskiej.

Penc J., 1997, *Leksykon biznesu*, Warszawa: Agencja Wydawnicza Placet.

Rzeszotarska-Wyrwicka M., 1998, *Organizowanie systemów pracy*, Poznań: Wyd. Politechniki Poznańskiej.

Seiwert L.J., 2001, *Zarządzanie czasem*, Warszawa: Agencja Wydawnicza Placet.

Słowiński B., 2008, *Podstawy sprawnego działania*, Koszalin: Wyd. Uczelniane Politechniki Koszalińskiej.

Sobańska I. (ed.), 2013, *Lean Accounting – integralny element Lean Management*, Warszawa: Wolters Kluwer Polska.
Warnecke H.J., Bullinger H.J., Hichert R., Voegele A., 1993, *Rachunek kosztów dla inżynierów*, Warszawa: WNT.
Wołk R., 1958, Analiza i normowanie czynności ręcznych według systemu MTM, *Mechanik*, No. 12.
Wyrwicka M.K., Grzelczak A.U., 2011, *Audyt personalny*, Poznań: Wyd. Politechniki Poznańskiej.

Analiza kosztowa pracy człowieka i eliminowanie marnotrawstwa przez pryzmat normowania pracy

Streszczenie. *Punktem wyjścia do ustalania kosztów własnych produktu (wyrobu lub usługi) w każdym przedsiębiorstwie są koszty bezpośrednie, w tym w szczególności koszty materiałów i robocizny. Ustalenie kosztów robocizny bezpośredniej, jako ważnego elementu kosztów własnych produkcji, odbywa się w oparciu o opracowanie technicznych norm pracy na wykonanie jednostki produktu. Dobrze określone normy czasu pracy stanowią podstawę prawidłowego podziału pracy w obrębie danej jednostki organizacyjnej i racjonalnej organizacji przebiegu pracy, a tym samym sprzyjają obniżaniu kosztów pracy.*

Słowa kluczowe: *koszty robocizny, marnotrawstwo (muda) i jego eliminowanie, Kaizen, norma pracy, metoda MTM*

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Fair value measurement in the prospective orientation of contemporary financial reporting – Who needs it?

Abstract. *The purpose of this paper is to analyze the role of fair value measurement in contemporary financial reporting, the consequences it has for the quality of financial information, and to examine the real economy impact of the fair value option. In the first part of the paper, the author conducts theoretical studies of the elements of the prospective orientation of financial reporting and the role the fair value measurement plays in the realization of the financial reporting purpose. Reference to the traditional historical cost approach is made. In the second part, the author examines the consequences of the fair value option (FVO) for the real economy. In the author's opinion, it is likely that FVO implementation may force managers to more aggressive market behavior, which ultimately is not in favor of any stakeholder and, on the global scale, may easily destabilize markets.*

Keywords: *fair value, historical cost, financial reporting, fair value option, financial crisis*

Introduction

Introduction of fair value into the global practices of contemporary financial reporting triggered the reorientation of it from being retrospective to being prospective. It was a revolutionary change for market participants in all continental countries. At the initial stage of fair value measurement implementation the main stream of discussions among practitioners and accounting science representatives regarded the methods of fair value measurement. Subsequently the impact of subjectivity within the fair value measurement was emphasized as a potential problem for faithful representation in accounting. However, in the author's opinion, the most significant problem resulting from the fair value implementation into financial reporting practices in a global perspective may arise from the impact it has over the real economy. There is little reference to it among researchers.

Prospective financial reporting addresses the informational needs of stakeholders, but on the other hand injects additional uncertainties to presented financial reporting, especially in the range of performance reporting. The purpose of this paper is to analyze how fair value implemented into measurement of assets and liabilities responds to variety of informational needs of stakeholders, what are the side effects of implementation of fair value option and makes an attempt to answer the question: who really needs fair value accounting?

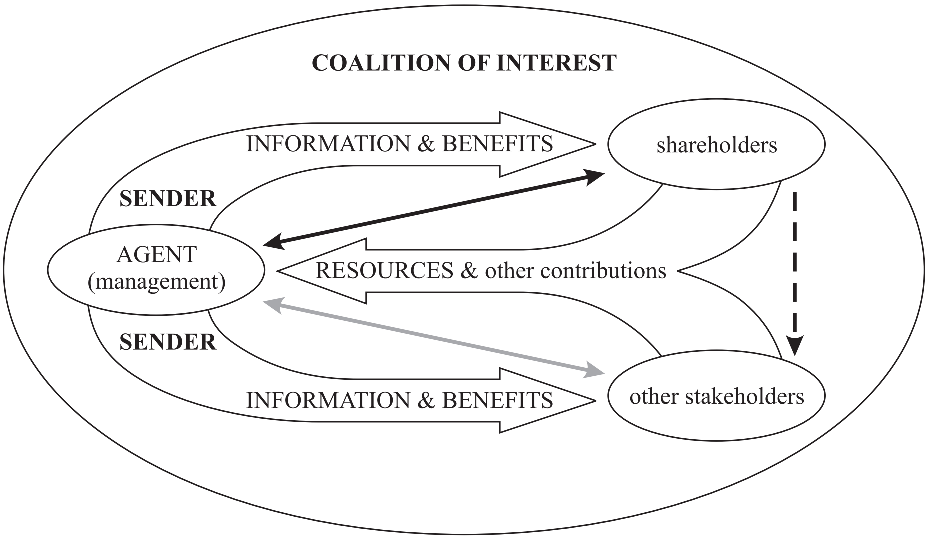
1. Purpose and functions of financial reporting

The purpose of this paper is not to analyze variety of perspectives presented by different authors about the goals and roles of accounting in contemporary economic society. Hereby the author limits himself to the conclusion that the basic purpose of accounting is to provide to the wide range of stakeholders information they will find useful for making economic decisions.

Thus, the perspective of external stakeholders is taken in this paper. Going further, financial statement components provide information about **the risk and reward mix** specific for given reporting entity. This mix is presented in dedicated financial statement components in which information on **financial position** (balance sheet) and **performance** (profit and loss account and/or (comprehensive) income statement, statement of cash flow) is presented.

This general purpose can be broken down to several more detailed functions accounting fulfils from perspectives of specific stakeholders. The author focuses on two major functions accounting fulfils in a business entity which is perceived from the perspective of the contractual model of the business entity. The idea of the contractual model of business entity is pictured in Figure 1.

In this model different stakeholders are providing the business entity with resources required for its operation, and managers in response provide stakeholders with contractual rewards (like: price, interest, and other payments incl. dividend) and information on possible execution of these rewards whenever they are postponed in time (i.e. not payable in reasonably short time). Information plays a key role in this arrangement, as stakeholders are exposed to risk of not getting any benefits or getting them with delays. Financial information allows them to understand what benefits they can expect (shareholders) and what the credit



Legend:
agency contract relations
relations based on other contracts: credit, sales, work etc.
relations of financial liability of shareholders (securing function of equity)

Figure 1. Contractual model of a business entity

S o u r c e: own study.

risk is, i.e. not being paid on time (other stakeholders). It represents the reward-risk mix specific for the reporting entity.

Both functions this paper is focusing on are based on performance reporting, thus are focused on “reward” part of financial information:

– settling accounts between entity and its shareholders through calculation of net financial result and distribution of dividends,

– analytical assessment of company performance performed by most of stakeholders, not only shareholders.

2. Retrospective orientation & historical cost concept

In traditional, continental accounting the reward-risk mix is perceived in in following way:

– performance representing reward – is measured on the basis and limited to achievements already accomplished with reservation of accrual accounting impact in which cash collection is not required to consider achievement done,

– financial position representing risk – is considering and limited to current status quo, where current means that only facts should be incorporated in financial information.

In retrospective accounting financial information is limited to facts which have one important characteristic: they belong to the past. Any judgment on future is to some degree a speculation which simply is not a fact. The dominating measurement concept is historical cost which is subsequently challenged by prudence principle. It doesn't change the fact that these judgements relay on historical facts only. Measurement of assets and performance is not influenced by gains resulting from favorable changes of assets market prices until they are realized, i.e. materialized in concluded transaction. Thus performance reporting is also limited to facts. Accrual basis of accounting could be considered a small exception from this fact oriented approach as the credit risk is clearly incorporated in reported performance. As a result performance is influenced only when market risk is fully transferred to counterparty in a transaction and contractual payment is going to be done with reasonable certainty. But it is not a subject of market risk anymore.

This approach is described as the transaction theory which stays in opposition to the value theory [Helin, Szymański 2001: 66-69], according to which market values and their positive changes are influencing performance of an entity and can be reflected in assets measurement. Value theory gives a ground to a wide use of fair value measurement.

3. Prospective orientation & fair value concept

Domination of capital markets as a main source of funding for business entities in Anglo-Saxon world had in a natural way resulted in prioritization of capital market participants as addressees of financial information ahead of other stakeholders. Consequently, the chase after any information that could potentially explain future performance begun. The turn into prospective financial reporting is noticeable directly in numerous obligatory positions of financial report. Among them the most important is wide use of fair value in assets (and liabilities) measurement. Although there are also other areas of prospective orientation of contemporary financial reporting, for instance:

– measurement of debt instruments at amortized cost using effective interest rate,

– high dependency of impairment measurement on future cash flows estimations,

– discounting of nominal values of long term receivables and liabilities, including provisions, down to present values,

– reporting on contingencies,

– wide range of qualitative, descriptive information disclosed in notes to financial statement, which are focused on future determinants of performance and financial position.

Thus, prospectively oriented financial reports focus on future performance which is a starting point for capital market games. These games are about incorporating expected future performance into current market valuation of company's shares. Market valuation of a company is hugely influenced by market's participants group perception of expected performance of companies. The historical data is important basically because it is a basis for formulated expectations as for the future (reward-risk mix) of these companies.

Most important element of prospective financial reports is an extensive use of fair value measurement. The intrinsic feature of fair value concept[1] is an assumption that the exchange price set by relevant method will be realized. Thus it puts another uncertainty element of assets measurement in the top of accrual accounting concept. Accrual accounting requires assumption that the price realized in a concluded transaction will be collected with reasonable certainty. The level of this certainty is subsequently challenged by prudence. With a fair value measurement adoption we put more uncertainty into reported performance, as it can be potentially disrupted not only by credit risk,[2] as it is in traditional accounting, but also by market risk, i.e. probability that actual transaction will be concluded at lower price that assumed in fair value. It must be noted that it is hard to determine the level of market risk incorporated in fair value, as it will differ depending on the actual methods used in this measurement. Thus, when market value is observed on active markets, the market risk is limited to probability of subsequent changes of market prices due to future circumstances. However, if market value is not observable on an active market, fair value is based on the assumptions on a potential transaction price, where in fact there is no transaction we could refer to. Fair value is then more a guess than a fact. Market risk is significantly increased in these circumstances, as not only the market can change, but our estimation as for the market price can be potentially incorrect.

Addressee of financial statements have very limited abilities to fairly assess and understand the level of market risk in fair value measures, as this risk is mitigated only by obligatory disclosures of fair value levels[3] adopted by a company

[1] Fair value is not a single measurement method but rather a measurement concept representing the mix of methods among which the most relevant is chosen depending on availability of data.

[2] Credit risk refers to risk of not collecting payment due.

[3] I.e. fair value hierarchy.

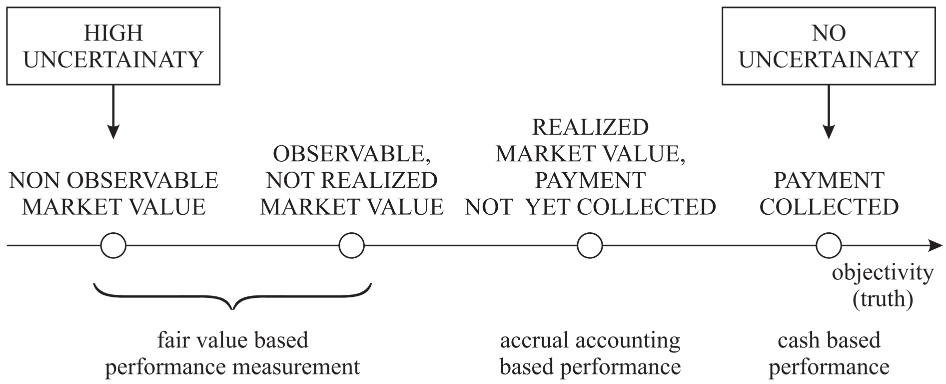


Figure 2. Level of objectivity in performance reporting under competitive accounting concepts

Source: own study.

into assets and liabilities measurement. And stakeholders have in practice limited abilities to incorporate all available information into their judgments. Influence of these concepts on performance reporting is illustrated by Figure 2.

Fair value measurement adoption into financial statements results in a reporting of potential performance, instead of factual, which is exposed not only to a credit risk, as in historical cost based and accrual accounting, but also to a market risk. In this reporting, the assumption is being made that the both risks are insignificant and both: market price and cash payment will be achieved with reasonable certainty.

It leads us to conclusion **that contemporary, prospectively oriented financial statements focus on future consequences of past management's decisions, whereas retrospective financial statements that used to be prepared under traditional continental accounting were focused on up to date consequences (facts) of management's past decisions.**

Contemporary global practice of financial reporting seems to be addicted to fair value. It is hard to imagine presentation of true and fair view of financial position and performance with limitations of historical cost today. Fair value is clearly a fruit of Anglo-Saxon accounting, where its impact over financial reporting practices was gradually increasing over the 2nd half of 20th century up the beginning of 21st century. Although current price based measurement of assets was present in the past of continental accounting as well, however it should be treated more like incident in a long history of historical cost [see Gawart 2012: 32].

4. Fair value option – value added for whom?

In 2005 International Accounting Standards Board (IASB) included FVO into IAS 39 allowing companies to elect any financial asset or liability to be measured at its fair value with the effects of revaluations to be reported directly in profit and loss account. The purpose of FVO was to limit volatility of reported earnings caused by mismatch of measurement methods of related financial assets and financial liabilities. In 2006 the first comprehensive and consistent regulation on the acceptable range of fair value measurement methods was set in the USA.[4] Shortly after the FVO appeared in USA practice,[5] and subsequently IASB issued its own regulation on fair value measurement which had a direct impact over European reporting practice.[6] Since then the use of fair value is similarly extensive under both regulations: US Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS).

There is some evidence from practice confirming that FVO may fulfill its role as it was intended by standard setters [Fiechter 2011: 85-108]. It is considered relevant for financial institutions where the real mismatch appears and in which implementing the extensive hedge accounting rules[7] seem to be not practical. On the other hand companies outside the financial sector do not involve fair value into measurement of assets other than financial or tangible investments. Thus companies representing non-financial sectors do not use it in significant scale and consequently it has not significant impact on the reward–risk mix information [see Hasik 2012: 65]. Whatsoever, we must assume that at least part of shareholders and probably most of other stakeholders present higher aversion to risk and as a consequence they are unlikely to accept additional risk resulting from fair value option adoption [see Mućko 2012: 92].

The timing of FVO introduction firstly into IFRSs and subsequently into US GAAPs is correlated with doubling of activity on global over-the-counter (OTC) derivative market. The total value of outstanding OTC derivative contracts has increased by 235% between 2007 and 2004, and gross value respectively by 174%. The growing tendency was maintained in subsequent years although the dynamic was much slower what is illustrated byTable 1.

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[4] Statement of Financial Accounting Standards (SFAS) No. 157, “Fair Value Measurements,” issued by FASB in September 2006.

[5] SFAS No. 159, “The Fair Value Option for Financial Assets and Financial Liabilities,” issued by FASB in February 2007.

[6] IFRS 13, “Fair Value Measurement,” issued by IASB in May 2011.

[7] Hedge accounting is the basic way to avoid mentioned mismatch of measurement methods of related financial assets and liabilities alternative to FVO.

Table 1. Historical statistics of global OTC derivative market between end-June 2004 and end-June 2014

[USD billion]	H1 2004	H1 2007	H2 2011	H2 2012	H1 2014
OTC foreign exchange contracts					
Notional amounts outstanding	31 500	57 604	63 381	67 358	74 782
Gross market value	1116	1612	2582	2313	1722
OTC commodity contracts					
Notional amounts outstanding	1354	8255	3091	2587	2206
Gross market value	176	690	481	347	269
Total OTC derivative contracts					
Notional amounts outstanding	220 070	516 411	647 811	635 685	691 492
Gross market value	6 391	11 145	27 307	24 953	17 423

S o u r c e: BIS, www.bis.org/statistics/derstats.htm [2.05.2015].

Noticeably, the gross value of outstanding commodity OTC derivatives jumped up 6 times over 2004 and 2007 to its historical peak, to deteriorate by 63% over next 3 years. The correlation with introduction of FVO and subsequent global financial crisis of 2008 is clear. The scale of these numbers becomes meaningful when put in the context global economy. It is pictorially depicted by comparison of global GDP, i.e. USD 74,7 trillion in 2013,[8] to total gross value of OTC derivatives contracts outstanding[9] stood at USD 18,8 trillion [BIS 2014], that is app. 25% of global GDP. Please note, that gross value of those contracts outstanding represent the market value of these contracts, which for the financial reporting purposes is carried into financial statement at fair values under both IFRS and US GAAP.

When the existing investment markets became too shallow for the global wealth searching for new investment opportunities, it turned into alternative profit making potentials: speculative transactions on both basic and derivative markets for basic commodities. Speculative capital involved in OTC markets became an important price driver of basic instruments, like commodities, including: oil, soya,

[8] *World Economic Outlook Database*, International Monetary Fund, October 2014, https://www.imf.org/external/pubs/ft/weo/2014/02/weodata/index.aspx [1.05.2015].

[9] Gross value of OTC contracts means its MtM valuation, not the nomital value of the contracts, which stood at USD 710 trillion as of year-end 2013, i.e. 9,1 times the global GDP: “The gross market value is calculated as the sum of the absolute value of gross positive market values and gross negative market values. The gross positive market value is the gain to derivatives dealers – and the gross negative market value the loss – if the dealers were to sell their outstanding contracts at market prices prevailing on the reporting date.”

rapeseed, wheat, corn etc., responsible for increasing fluctuations of these commodities' prices in a short run and continuing growing tendency in a medium and long run [see Dybowski 2013: 19; Wysoczańska 2015]. It turned out to be very visible in 2008 when FAO global food price index nearly doubled within three years [Dybowski 2013: 18]. These are the basic goods responsible for cost of living of an average European citizen.

Obviously, the price drivers are multiple and complex. But it seems that introduction of fair value measurement and FVO into global financial reporting practice pushed financial institutions to more aggressive engagement in the multiple global markets, as the reward for both institutions and their managers was instant: the increase of market prices of assets held was on day-by-day basis reported in profit and loss account. Consequently shareholders were benefited with increases of share prices and managers with bonuses, which in turn pushed them for even more aggressive behavior. Instant reward from fair value measurement which appears before the sales transaction is concluded is potentially shortening the distance to speculative bubble creation. It was observed in 2008 when the financial crisis was announced as a consequence of too high risk acceptance and splash of speculative bubbles on several financial and non-financial markets. The only difference was, that this time financial institutions responsible for the financial crisis of 2008 refused to accept the consequences of their actions and pushed regulatory body for a change of rules when the game was on. The abolition implemented by IASB into IAS 39 in October 2008 allowed the holders of troublesome assets to reclassify them into available-for-sale category without any consequences and this way to safe their profit and loss accounts their managers to safe their bonuses.

Conclusions

Wide adoption of fair value measurement into financial reporting is clearly driven by strong influences of financial institutions. The use of it by companies operating outside of financial markets is marginal. It is one of the most important evidence of prospective orientation of contemporary financial reporting. Stakeholders gain useful prospective information, but on the other hand they could be easily misled by it, as the reported performance is subject to significant market risk. The implementation of FVO into contemporary financial reporting may potentially trigger more aggressive market behavior of managers, as they get the instant reward for their decisions even if consequences are not yet known. That, along with more loose relation of reported information to facts can potentially bring negative consequences to all stakeholders, including shareholders.

References

BIS Quarterly Review, International banking and financial market developments, BIS, June 2014, www.bis.org/publ/qtrpdf/r_qt1406.pdf [1.05.2015].

Dybowski G., 2013, Globalny rynek żywnościowy – nowe uwarunkowania dla sektorów narodowych, in: A. Kowalski, M. Wigier, M. Bułkowska (eds.), *Nowe rozwiązania WPR 2013+ wobec wyzwań rolnictwa krajów członkowskich Unii Europejskiej*, Warszawa: Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej, Państwowy Instytut Badawczy.

Fiechter P., 2011, The Effects of the Fair Value Option under IAS 39 on the Volatility of Bank Earnings, *Journal of International Accounting Research*, Vol. 10, No. 1: 85-108.

Gawart M., 2012, Wartość godziwa – nowa zasada wyceny?, in: H. Buk, A. Kostur (eds.), *Za i przeciw wartości godziwej. Teoretyczne aspekty wartości godziwej*, Katowice: Wyd. UE w Katowicach.

Hasik W., 2012, Wartość godziwa a wypłacalność podmiotu gospodarczego, in: H. Buk, A. Kostur (eds.), *Za i przeciw wartości godziwej. Teoretyczne aspekty wartości godziwej*, Katowice: Wyd. UE w Katowicach.

Helin A., Szymański K.G., 2001, *Sprawozdawczość finansowa spółek kapitałowych*, Warszawa: FRRwP, BDO.

Mućko P., 2012, Wycena w wartości godziwej w świetle asymetrii informacji i potrzeb informacyjnych użytkowników sprawozdań finansowych, in: H. Buk, A. Kostur (eds.), *Za i przeciw wartości godziwej. Teoretyczne aspekty wartości godziwej*, Katowice: Wyd. UE w Katowicach.

World Economic Outlook Database, International Monetary Fund, October 2014, www.imf.org/external/pubs/ft/weo/2014/02/weodata/index.aspx [1.05.2015].

BIS Quarterly Review, International banking and financial market developments, BIS, June 2014, www.bis.org/publ/qtrpdf/r_qt1406.pdf [1.05.2015].

Wysoczańska A., 2015, *Oto przyczyny wzrostu cen żywności*, http://finanse.wp.pl/kat,1034079,title,Oto-przyczyny-wzrostu-cen-zywnosci,wid,13149820,wiadomosc.html [30.04.2015].

Wycena wartości godziwej w kontekście prospektywnej orientacji współczesnej sprawozdawczości finansowej – komu jest ona potrzebna?

Streszczenie. *Celem artykułu jest analiza roli pełnionej przez wycenę w wartości godziwej we współczesnej sprawozdawczości finansowej, wpływu wyceny w wartości godziwej na jakość informacji finansowej oraz wpływu opcji wyceny w wartości godziwej (Fair Value Option) na realną ekonomię. W pierwszej części artykułu zaprezentowana jest teoretyczna analiza elementów prospektywnej orientacji sprawozdawczości finansowej oraz roli wartości godziwej w realizacji celów sprawozdania finansowego. Analiza została przeprowadzona w odniesieniu do dwóch przeciwstawianych sobie koncepcji rachunkowości: tradycji rachunkowości kontynentalnej opartej na koszcie historycznym oraz tradycji rachunkowości anglosaskiej zorientowanej na wyceny bieżące, w szczególności według wartości godziwej. W drugiej części artykułu podjęto próbę analizy wpływu opcji wyceny w wartości godziwej na realną ekonomię. Istnieje duże prawdopodobieństwo, że przyjęcie opcji wyceny w wartości godziwej będzie skłaniało menadżerów instytucji finansowych* *do podejmowania bardziej agresywnych decyzji finansowych, które nie są zgodne z interesem interesariuszy. Zachowania te mogą w skali globalnej gospodarki w istotny sposób przyczyniać się do destabilizacji rynków. Są przesłanki do stwierdzenia, że przyjęcie wartości godziwej przyczyniło się w pewien sposób do powstania kryzysu finansowego w roku 2008.*

Słowa kluczowe: *wartość godziwa, koszt historyczny, sprawozdawczość finansowa, opcja wyceny w wartości godziwej, kryzys finansowy*

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Challenges of modern financial reporting in the context of corporate governance trends and information resources

Abstract. *Presently, the market position of modern economic organizations is increasingly more determined by the availability and the quality of information resources, and the adopted model of information resource management. At the same time, in the context of the need for eliminating information asymmetry as the most fundamental principal-agent dilemma in view of modern trends in corporate governance, organizations face the problem of measuring, valuating, interpreting, and presenting the information resources accumulated or generated by the organization as part of its intellectual capital. An important question raised in this context is: what are the most significant problems in reporting and disclosing information resources under the present format of financial reporting? Does the use of modern instruments, such as network analysis and information audits, offer any help in reducing uncertainty in the measurement and valuation of this particular type of company resources and important source of company market value?*

Keywords: *financial reporting, corporate governance, information resources, audit information, network analysis*

Introduction

Modern economic organizations, operating in a turbulent environment of highly competitive markets, place more and more emphasis on optimization of their business models. Their market position is increasingly more determined by the availability and the quality of information resources (data, information and knowledge) and by the adopted model of information resource management. The diversity and quantity of information available in modern economy poses a significant challenge to dynamic development of companies, since their management – due to overabundance of information – faces problems in identifying information of potential significance for management-related tasks. In effect, as emphasized by G. Mazurek, information resources as such are no longer the key factor for organizational development – the most crucial determinants are the skills that ensure proper identification, evaluation and utilisation of the most significant bits of information available [Mazurek 2011: 187].

At the same time, in the context of the need for eliminating information asymmetry as the most fundamental principal-agent dilemma, and in view of modern trends in corporate governance, organizations face the problem of measuring, valuating, interpreting and presenting the information resources accumulated or generated by the organization as part of its intellectual capital. Company boards have already begun to appreciate the role of immaterial resources in day-to-day operation. Immaterial assets are of great significance for the survival and development of any organisation. As a result, based on careful diagnoses of immaterial factors (including the information resources), boards formulate strategies for organisational development to increase future market value for the company as a whole, including the value increase of intellectual capital [Paliszkiewicz 2008: 137].

An important question can raised in this context: what are the most significant problems in reporting and disclosing of information resources under the present format of financial reporting? The aim of the paper is to indicate management tools (social networks, audit information) to assist measurement and valuation intellectual capital (information resources) in terms of corporate governance, on the basis of the literature using reasoning by analogy.

1. Trends in corporate governance

Corporate governance represents a system of rules and practices by which companies are directed and controlled. It comprises of principles and standards related to the broadly defined area of company management. This is why the distribution of decision-making and controlling entitlements of top management is of crucial value [Samborski 2012: 102].

One of the popular concepts in this context is ‘enterprise governance’, integrating two fundamental areas of company supervision: the achievements (corporate governance) and the compliance (business governance). The concept places an obligation on company boards to control the realisation of managerial tasks in the 'compliance' dimension that reflects past accomplishments and in the 'achievements' dimension that reflects future accomplishments. Board responsibilities in the first area are focused on ensuring the compliance of business operation with legislative regulations, other provisions (such as those formulated in company statutes), best practices of corporate governance, the adopted standards and policies of accounting, auditing, internal control and audit, and so on. Compliance, in this context, refers to the adjustment of financial and non-financial information systems to the pending regulations and adopted standards. Boards are obliged to ensure that the relevant information presents a clear and true image of company operating results, and this aspect serves as evidence of proper realisation of the managerial responsibilities imposed upon the board as the trustees [Gad 2012: 779].

M. Marcinkowska suggests that the most fundamental processes in the management of company accomplishments in the 'achievements' area are those that apply to: strategic planning, strategic risk management, designing of scorecards, designing of information systems, etc., under the assumption that the main purpose of these processes is to generate value and ensure a responsible use of company resources [Marcinkowska 2004: 25].

The multitude of approaches to defining corporate governance is a clear indicator of the multifaceted nature of this phenomenon and of the evolution in its interpretation. Regardless of the adopted approach, all definitions emphasise the problem of effective realisation of organisational policy based on respect for the interests of all stakeholder groups, effective information policy and communication with stakeholders. Consequently, the central postulate of corporate governance is to ensure transparency, clarity and promptness of information disclosed as part of the reporting obligation. Since information resources (and information systems) are the source of added value for any organisation, all information generated internally by economic entities should be represented in the adopted reporting model (this also involves the problem of IT governance, but this aspect is beyond the scope of this paper).

2. Information as an element of company information resources

Company information resources we can define as sets of potentially useful information and meta-information accumulated and stored in time, in place, and based on the use of technologies and organisation methods that ensure its utility for end users [Oleński 2000: 161]. Information resources, as any other type of company resources, should fulfil the following conditions: be of strategic significance, constitute a rare resource, and constitute value irreplaceable by any other resource. In line with this approach, not every bit of information accumulated and stored by the organisation can be interpreted as a resource. This label can only be used with respect to information that can be processed and used for the purpose of increasing the entity's value [Materska 2005].

Professional literature offers many definitions of information as an element of company information resources.

Below are some of the attributes of information that differentiate it from material resources [Cleveland 1982: 34-39]:

– information is expandable – its value grows with use and dissemination,
– information is condensable (it may be compressed, integrated),
– information can replace other resources, also those of material character,
– information is mobile (easily transportable),
– information is diffusive, with tendency to 'seep through' organisational boundaries and control/security systems, requiring strict information policy (including protection measures),
– information is shareable – it will not deplete in transfer; when shared (either intentionally or against the owner's intentions), it will remain in the owner's possession, despite the fact that the other party may now use it for their own purpose.

Information is defined by a set of quantitative and qualitative attributes that may serve as measures of its utility and value. The most important factor deciding on information utility is its context, closely related to the proper interpretation of its significance by the recipient [Gospodarek 2008: 128].

Professional literature provides a number of classifications with respect to the qualitative attributes of information, based on a variety of criteria. However, regardless of the adopted approach to classification and the adopted terminology, most of the authors agree that the most important attribute of information is its relevance. The postulate of relevance entails its suitability and adjustment to the information needs of the user, as required for the solution of a specific decision-making problem. In other words, it should be in an operationally useful relation to the activities that yield specific results. This means that the relevance of information in decision-making processes is defined by the strength of correlation between informational needs, decisions, and the effects of those decisions.

Professional literature provides also a number of attribute sets that describe the notion of information. Some authors (cf. Buśko et al.), based on the definitions of management functions and objectives and the operating capabilities of users, postulate that information be [Buśko et al. 1980, after Gryncewicz 2007: 110]:

– credible, i.e. in objective accordance with the notion it describes at a given place and time,

– up to date – it should be provided to the user concurrent with the problem it applies to,

– detailed – its scope should be adjusted to the level of management, as appropriate for a given class of decision-making problems,

– addressable, i.e. targeted to specific recipients,

– accurate, i.e. sufficiently precise and properly structured, within the limits of the user's requirements and the acceptable processing cost,

– non-dissonant, i.e. in logical (semantic), substantial and formal accord with the field it describes,

– accessible, i.e. available at a specific time and place, using the simplest of procedures acceptable to the recipient,

– complete, i.e. covering the whole extent of the problem faced in the decision-making process,

– unambiguous, i.e. clearly identifying and describing the problem at hand, in a manner that defies any interpretation problems,

– cheap (economic), i.e. obtainable at the lowest possible cost.

The economic success of any organisation depends on the effectiveness of its information systems. In effect, information in such systems should be characterised by the following attributes: usefulness (in a subjective sense of the term), relevance to the problem at hand, promptness, accuracy, adjustment (formatted to suit the user's requirements in the context of the problem at hand), completeness (deemed sufficient by the user), and accessible (both in the context of information security and the user's perceptive potential) [Gupta 2000, za Gryncewicz 2007: 107].

E. Kolbusz introduces the notion of utility as a synthetic representation of various qualitative attributes of information in an open configuration related to the specific needs of the user. In this approach, information of utility represents any type of information that provides the expected content at the required level of significance, as judged by the user of such information [Kolbusz 1993, za Gryncewicz 2007: 107].

In an infological approach to the interpretation of information, each qualitative feature is related to certain elements of the information-bearing message, with quality of information indicated by measure of its concordance with the requirements formulated by recipients in the form of properties and property weights. The resulting indicators, such as one formulated by B. Stefanowicz [Stefanowicz 2004, za Gryncewicz 2007: 111], allow to relate the notion of quality with the notion of information on the plane defined by message, offering a basis for the formulation of conclusions on the quality of information and on the directions for its improvement, regardless of the interpretation of its individual qualitative properties.

Many interesting concepts were generated in response to the increased interest in quantifying information. These include the pioneering theory by C.E. Shannon, R. Ackoff's definition of information; the non-probabilistic approach to information (represented in the works of R. Ingarden and K. Urbanik); the concept of relating information to its content (cf. Bar-Hillel) to its quality (cf. M. Mazur) or to its usability (cf. K. Szaniawski) [Sienkiewicz 2011: 127-128]. Of all the models used for the valuation of information in professional literature, the most popular include models by J. Marschak, Altrogge (based on Bayes' theorem) and V. Schindel [Nadolna 2013: 453].

M. Żmigrodzki postulates to relate the value of information to the 'return on decision' and to the increase (or decrease) of the probability of making such a decision. If a bit of information is a source of a new decision variant for the user, then its value can be determined based on the forecasted increase of the chance to make the decision and the projected returns obtained as a result of making the decision. Similar determination can be made if the information reduces the chance of selecting an unprofitable variant. The problem lies in determining the coefficient representing the share of analysed information in the decision-making process.

Thus, the value of information can be appraised by determining its decision-making value, with measure of information value defined in terms of increase of benefits related to the information under examination. Following this approach, the value of information takes up a subjective quality, since it is related to the degree to which the information meets the user's expectations formulated at a specific place and time and determined by conditions of present situation [Żmigrodzki 2007: 35].

The process of determining the value of information is encumbered by several factors. The most important reasons for difficulties in this respect are related to the following properties [Mazurek 2011: 190]:

– examination of the value of information requires agreement on the concept of exchange value,

– multitude of applications – the same bit of information may be used simultaneously by many users; each of them may attach different value to it;

– asymmetry of information and its subjectivity make it difficult to determine its value a priori;

– the quality of information is also subjective and may be judged differently by different users;

– the quantity of information: the degree to which information reduces the uncertainty in the evaluation of the present state of a phenomenon under observation is directly related to the value attached to it.

The effective access to information and its application depends on the provision and the quality of information systems – autonomous, multilayered structures for processing of input information into output results adjusted to predefined requirements, based on suitable instruments, methods and algorithms Matulewski 2007: 98].

The quality of information is also affected by distortions (the so-called noise) generated in the course of message transmission from the sender to the recipient, thus relating the quality of information to the quality of information systems.

The starting point for the evaluation of information system quality is the determination of its effectiveness and efficiency. Effectiveness, in this context, relates to the system's capacity for providing the expected result, while efficiency describes the system's potential for effective use of resources, i.e. the relation between the effect and the cost of resources consumed in the process [Martyniak 2000: 11].

Information resource management in business organisations should strive to determine a viable strategy for the realisation of the company informative function, based on efficient and effective use of intellectual capital resources (as a source of company value).

3. Modern challenges for information resource reporting

The problem of accurate representation of information resources generated internally by business organisations is related to the difficulties and ambiguities in defining the concept of intellectual capital and the associated taxonomy (in the most popular definitions of intellectual capital, the information resources are part of company's structural capital).

Professional literature offers both quantitative and qualitative methods for the evaluation of intellectual capital. The problem lies not only in the multitude of assessment and valuation methods, but also in the large variety of postulated classifications, since no universal standard of classification applies in this context.

The problem of accurate representation of information resources generated internally by economic organisation under the present model of financial reporting is determined by the fact that non-material assets create value in synergy with other resources. Therefore, the most important issue is to determine whether a particular immaterial resource can be interpreted in terms of organisational assets. There are difficulties in establishing a precise capacity for this type of resources to generate tangible economic benefits, as well as in determining the cost associated with this type of resource [Michalczuk 2008: 235]. It must be noted that reducing the criteria used for recognition of the value of non-material assets may significantly reduce the reliability of financial statements, without increasing their usefulness [Mućko 2014: 133].

Analyses of financial statements produced by business organisations shows that reporting of intellectual capital (if at all present) tends to follow one of the following two approaches: on the one hand – narrative reports supplemented by non-financial reports on various factors affecting the company financial result, on the other hand – detailed reports on non-material (intellectual) assets. Speaking of trends in the development of methods for measuring and reporting data and information on intellectual capital, it may be useful to emphasise, after P. Rumniak, that the initiatives related to measurement and reporting of data and information on non-material resources are largely internal, typically non-obligatory, and that there are no efforts at present to harmonise them on international level [Rumniak 2012: 315].

Organisations willing to face the challenges of corporate management of information and knowledge, particularly the problem of accurate quantification of their information and knowledge resources, should in the first place examine (identify and locate) both the available and the required (and obtainable) resources [Materska 2005]. The methodical process involving the determination of company requirements for information and knowledge, the recognition of information flow channels, the examination of uses, processes and transfers of information, the identification of information gaps is referred to as information audit. Its results, in the form of 'information mapping', are used as basis for effective formulation of company information strategies. In other words, analyses of company requirements for information serve as basis for information auditing of company public information resources (traditional documents stored in digital format) and for auditing of knowledge, i.e. organisational skills and experience of inherently imperceivable character (as part of the so-called invisible resources). Information audit also requires accurate measurement and valuation of information resources [Materska 2008: 234].

Estimation of the value of information resources – for example, the value of information in the context of its decision-making utility – can also be based on network analysis (an interdisciplinary approach to processing of relational data). The fundamental concept in this approach is the notion of network, as a complex system (structure) of nodes interconnected by relational links at various levels of relationships, element groups, etc. Thus defined, the organisational network offers potential for monitoring and managing the flow of central resources – such as information or knowledge – for the purpose of streamlining its allocation. The layer of the network that corresponds to relations in the decision-making context offers insight into the level of complexity involved in individual paths of the decision-making process. It can also be used for the purpose of analysing the involvement of individual employees and – most of all – as illustration of the flows of information and decisions [Zbieg et al. 2014: 116].

Conclusions

The cognitive value of information as a fundamental resource of any business organisation can be examined in both objective and subjective approach, with "objective value of information related to its utility in a particular decision-making context." On the one hand, it is determined by the quality, the quantity and the value of the information content, on the other – by the organisation's demands and requirements for information. This means that the value of information can be expressed as a difference between results obtained with access vs. without access to information under examination. In a subjective approach, the cognitive value of information is related to individual experiences, attitudes, preferences and skills of its users [Kiziukiewicz 1984, za Gmińska, Magier-Łakomy 2014: 80]. Since the information resources generated by a business organisation do not meet the requirements of financial reporting standards, they are typically excluded from financial statements and interpreted as part of the so-called company value. This problem is related to the lack of internationally accepted standards for measurement, valuation and disclosing of intellectual capital. To solve this dilemma, a set of universal criteria should be adopted for: the valuation of non-material resources, the evaluation of their effectiveness and efficiency, and so on. Certain instruments, such as information audit and network analysis, can be employed to effectively reduce the uncertainty inherent in the measurement and valuation of information resources.

References

Buśko B., Filipek H., Śliwieński J., 1980, *Wiarygodność informacji ekonomicznej w systemach informacyjnych*, Warszawa: PWE.

Cleveland H., 1982, Information as a resource, *The Futurist*, Vol. 16, No. 6.

Eaton J.J., Bawden W., 1991, What kind of resource is information?, *International Journal of Information Management*, No 11.

Gad J., 2012, Mechanizm wewnętrzny nadzoru korporacyjnego a system rachunkowości w polskich spółkach publicznych, *Finanse, Rynki Finansowe, Ubezpieczenia*, No. 51.

Gmińska R., Magier-Łakomy E., 2014, Efekt obramowania w decyzjach ekonomicznych wspomaganych informacjami z rachunkowości, *Zeszyty Teoretyczne Rachunkowości*, Vol. 77(133).

Gospodarek T., 2008, Elastyczność zasobu informacyjnego, in: R. Krupski (ed.), *Elastyczność organizacji*, Wrocław: Wyd. UE we Wrocławiu.

Gryncewicz W., 2007, *Charakterystyki i miary jakości informacji*, Wrocław: Wyd. AE we Wrocławiu.

Gupta U., 2000, *Information Systems: Success in the 21st Century*, Prentice Hall Canada.

Kiziukiewicz T., 1984, *Problemy dostosowania rachunkowości do informacyjnych wymagań zarządzania*, Szczecin: Wyd. Politechniki Szczecińskiej.

Kolbusz E., 1993, *Analiza potrzeb informacyjnych przedsiębiorstwa. Podstawy metodologiczne*, Szczecin: Wyd. Nauk. Uniwersytetu Szczecińskiego.

Marcinkowska M., 2004, *Roczny raport z działań i wyników przedsiębiorstwa*, Kraków: Wyd. Oficyna Ekonomiczna.

Michalczuk G., 2008, Przydatność informacyjna sprawozdawczości finansowej w zakresie wewnętrznie wytworzonych wartości niematerialnych, *Zeszyty Naukowe SGGW w Warszawie*, No. 66, *Ekonomika i Organizacja Gospodarki Żywnościowej*.

Martyniak Z., 2000, Przejawy niesprawności informacyjnej i kryteria oceny jakości informacji, *Zeszyty Naukowe Akademii Ekonomicznej*, No. 534, Wyd. Akademii Ekonomicznej, Katowice.

Materska K., 2005, Rozwój koncepcji informacji i wiedzy jako zasobu organizacji, in: B. Sosińska-Kalata, M. Przastek-Samokowa, co-operation A. Skrzypczak (eds.), *Od informacji naukowej do technologii społeczeństwa informacyjnego. Miscellanea Informatologica Varsoviensia*, Warszawa: Wyd. SBP.

Materska K., 2008, Audyt informacyjny w obszarze nauki i szkolnictwa wyższego, in: D. Pietruch-Reizes (ed.), *Zarządzanie informacją w nauce*, Katowice: Wyd. Uniwersytetu Śląskiego.

Matulewski M., 2007, Informacja, komunikacja a zarządzanie wiedzą, *Język, Komunikacja, Informacja*, Vol. 2.

Mazurek G., 2011, Informacja w wirtualnym środowisku a rozwój społeczeństwa informacyjnego, *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Ekonomiczne Problemy Usług*, No. 67.

Mućko M., 2014, Problemy uznawania wartości niematerialnych w rachunkowości, *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Finanse, Rynki Finansowe, Ubezpieczenia*, No. 71: 133, www.wneiz.pl/frfu [1.05.2015].

Nadolna B., 2013, Jakość informacji na potrzeby analizy decyzyjnej z wykorzystaniem kosztów relewantnych, *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Finanse, Rynki Finansowe, Ubezpieczenia*, No. 61.

Oleński, J., 2000, Elementy ekonomiki informacji. Podstawy ekonomiczne informatyki gospodarczej, Warszawa: Katedra Informatyki Gospodarczej i Analiz Ekonomicznych UW.

Paliszkiewicz J.O., 2008, Nowe wyzwania dla rad nadzorczych w kreowaniu wartości przedsiębiorstwa opartego na wiedzy, in: S. Rudolf (ed.), *Rola nadzoru korporacyjnego w kreowaniu wartości przedsiębiorstwa*, Łódź: Wyd. Uniwersytetu Łódzkiego.

Rumniak P., 2012, Kierunki w rozwoju raportowania wewnętrznego przedsiębiorstwa, *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, No. 265.

Samborski A., 2012, Zarządzanie ryzykiem w przedsiębiorstwie – uwarunkowania w kontekście zasad nadzoru korporacyjnego, *Zeszyty Naukowe Szkoły Głównej Gospodarstwa Wiejskiego w Warszawie. Ekonomika i Organizacja Gospodarki Żywnościowej*, No. 96.

Sienkiewicz P., 2011, Ewaluacja informacji w społeczeństwie informacyjnym, *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Ekonomiczne Problemy Usług*, No. 67.

Stefanowicz B., 2004, *Informacja*, Warszawa: SGH.

Zbieg A., Żak B., Zaręba P., 2014, Analiza sieci w badaniach struktury organizacji, *Nauki o Zarządzaniu*, No. 2.

Żmigrodzki M., 2007, Przepływ informacji i decyzji w przedsiębiorstwie, *E-mentor*, No. 3(20).

Wyzwania współczesnej sprawozdawczości finansowej w kontekście wzrastającej roli zasobów informacyjnych organizacji gospodarczych

Streszczenie. *Współcześnie efektywne konkurowanie na rynku jest w coraz większym zakresie zdeterminowane posiadanymi zasobami informacyjnymi i przyjętą koncepcją zarządzania nimi. Równocześnie wobec problemu eliminacji asymetrii informacji jako podstawowego problemu teorii agencji oraz tendencji w ładzie korporacyjnym istotny staje się problem pomiaru, wyceny, ujęcia i prezentacji w systemach rachunkowości zasobów informacyjnych wytworzonych wewnętrznie przez organizację gospodarczą, które stanowią element tzw. kapitału intelektualnego. Na tym tle powstaje pytanie: jakie są najistotniejsze problemy z ujęciem w modelu sprawozdawczym zasobów informacyjnych? Czy wykorzystanie narzędzi takich jak analiza sieci i audyt informacyjny może być pomocne w zmniejszeniu niepewności pomiaru i wyceny tych zasobów, które są źródłem wartości każdej organizacji gospodarczej?*

Słowa kluczowe: *sprawozdawczość finansowa, ład korporacyjny, zasoby informacyjne, audyt informacyjny, analiza sieci*

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Accounting outsourcing in Russian economic practice

Abstract. *The changes that occurred in the Russian economy in the 1990s gave rise to the development of economic activity undertaken by private companies, which made it necessary to introduce far-reaching amendments to the economic law, including accounting law. One of the major changes is represented by the possibility for the management of a business entity, to eliminate the position of a chief accountant from its organisational structure, or even discontinuing the employment of accountants, and outsourcing the bookkeeping to third parties.*

Despite the processes of globalisation and their marked influence on Russian accounting law, it should still be taken into account that this law may differ from the solutions adopted in other countries or in international standards. The purpose of the article is to identify the solutions currently adopted in Russian economic practice with regard to the outsourcing of accounting and the applicable legal solutions.

The applied research methods included a descriptive analysis and deduction. Russian-language literature and legislation formed the subject of the research.

Keywords: *outsourcing, accounting, law*

Introduction

At present, the development of the services sector, services for business in particular, is one of the commonly prevailing worldwide tendencies. This tendency occurs also in Russia, with the very strong development of this part of the sector which includes the outsourcing of accounting services. The said development can be observed on both the local Russian market and, for example, in Poland, because increasingly often entities conducting their activity within the territory of the Russian Federation become the customers of Polish companies that provide accounting services.

The outsourcing of accounting in the Russian economic practice entails, as in other countries, the occurrence of numerous types of problems, including, for example, the problem consisting in the lack of nomenclature for this type of contracts in the economic law. The definition of responsibility for the accounting of a business entity in the Russian accounting law poses another problem, since, despite the 20 years of transformation in the Russian economy and amendments introduced to the above-mentioned law during that time, under the influence of international standards and solutions adopted worldwide, it has to be taken into account that in many respects significant differences still occur.

The purpose of the article is to identify the solutions currently adopted in the Russian economic practice for the outsourcing of accounting and the applicable legal solutions.

The applied research methods included a descriptive analysis and deduction. The Russian-language literature and legislation formed the subject of the research.

1. Accounting outsourcing market in Russia

The authors of both scientific and popular science publications emphasise that the outsourcing of business services in Russia has been developing for several years, becoming a mass phenomenon [Новикова 2010]. Functions that are most often subject to outsourcing include:

– IT services,
– keeping books of accounts and tax records and drawing up financial statements,
– human resources search and selection,
– temporary staffing services,
– PR services and advertising,
– office cleaning,
– security services,
– catering,

– transport services,
– administrative services.[1]

Therefore, it can be stated that the range of services for business most often used by economic entities is similar to that encountered in the Polish conditions [Koczar 2014: 110].

It should be noted that from among all services for business the accounting services develop fastest, starting from the 90s.[2] Some sources suggest that in 2009-2014 profits earned by this service segment rose by 2.5 times,[3] whereas according to another source a twofold or threefold increase occurred in 2011 only [Тохчукова].

In the last years (2013-2014) accounting outsourcing services were being delivered most often to entities involved in trading, oil and gas processing, food production and construction, while state and educational institutions made use of these services to the least extent.[4]

The largest number of entities use the services of keeping books of accounts and tax records (42-47% in the years 2013-2014), payroll processing (32-27% in the years 2013-2014), and drawing up of financial statements: according to the IFRS (10-9%) and according to the Russian national standards (7-6%).[5]

It should be emphasised that the majority of accessible statistical data are based on the information made available by rating agencies, because Rosstat, the official statistics authority of the Russian Federation, not only does not investigate the development of the accounting services market, but it does not even examine services for business as a segment (the data made available by Rosstat concern services as a sector, taking specifically into account, in some cases, the so-called services for individuals). The associations or institutes of accountants and auditors functioning in Russia to date have not conducted any relevant research either.

[1] www.audit-it.ru/articles/account/buhaccounting/a6/44036.html [1.01.2015]; www.klerk.ru/buh/articles/65975 [1.01.2015].

[2] www.gaap.ru/articles/Bukhgalterskiy_autsorsing_i_konsalting_2013_Reyting_kompaniy [17.10.2015].

[3] www.raexpert.ru/ratings/outsourcing/2014 [17.10.2015].

[4] http://raexpert.ru/ratings/outsourcing/2014/, [17.10.2015]; http://otchetonline.ru/pomoshh-buxgalteru/buhuchet/40856-reyting-kompaniy-v-oblasti-autsorsinga-uchetnyh-funkciy-za-2013-god-ot-quot-ekspert-ra-quot.html, [17.10.2015]

[5] http://raexpert.ru/ratings/outsourcing/2014 [17.10.2015]; http://otchetonline.ru/pomoshh-buxgalteru/buhuchet/40856-reyting-kompaniy-v-oblasti-autsorsinga-uchetnyh-funkciy-za-2013-god-ot-quot-ekspert-ra-quot.html [17.10.2015]

2. Legal bases for the outsourcing of accounting in the Russian economic law

The Russian accounting law is a four-level system, including legal regulations of varying importance and effect. The first level comprises, among others, the accounting law, which provides the basis for contracting the bookkeeping and reporting activities out.[6] The possibility of making a decision to outsource accounting was and is offered to the manager of a business entity by the accounting law, both the previous one[7] and the one currently in effect.[8] In the light of the above law, the manager, having analysed the volume and the degree of complexity of the accounting work, may decide to:

– organise an accounting department as a separate element of an entity's organisational structure, reporting to a chief accountant,

– create the position of accountant,

– contract bookkeeping out (under an outsourcing contract) to the so-called accounting centre or a third-party entity that provides services of this type or place an order for bookkeeping with an external specialist accountant,

– do the bookkeeping himself,[9]

which, under the past conditions, both at the time of centrally planned economy and when a market economy started to be introduced, was not possible.

The lending institutions are the only entities that may not choose not to employ a chief accountant.

The information about the outsourcing of accounting has to be included in the accounting policy applicable in a given accounting year, and if the decision to outsource is taken during the accounting year, the entity is obliged to modify its accounting policy accordingly.[10]

It should be highlighted that neither the accounting law nor the provisions on granting licences for business activity stipulate for entities specialising in the provision of accounting services any obligations related to the obtaining of licences for such activity or impose on prospective service providers, apart from few exceptions, any formal requirements concerning education or practical experience.[11] These exceptions include open joint stock companies (except for

[6] More details about the structure of the Russian accounting law: Koczar 2012: 93-94.

[7] Федеральный закон „О вухгалтерском учете" от 21 ноября 1996 N 129-ФЗ.

[8] Федеральный закон „О вухгалтерском учете" от 6.12.2011 N 402-ФЗ.

[9] Ibidem.

[10] Положение по бухгалтерскому учету „Учетная политика организации" ПБУ 1/98, утвержденного приказом Минфина России от 09.12.1998 N 60н.

[11] Письмо Минфина России от 1.08.2007 N 03-11-04/2/193.

lending institutions), insurance companies and non-state pension funds, equity investment funds, managers of equity investment funds, other business entities whose securities are admitted to trading on stock exchanges (except for lending institutions), managing bodies of state extra-budgetary funds and managing bodies of state extra-budgetary local funds. A chief accountant or a person keeping books of accounts of the entities listed hereinabove has to:[12]

– hold a degree in higher education,[13]

– have sufficient job seniority related to bookkeeping, the drawing up of financial statements or auditing, i.e. not fewer than three years over the last five calendar years, and in the case of persons who do not have a degree in accounting and auditing their seniority may not be shorter than five years over the last seven calendar years,[14]

– have no record of conviction for white-collar crime.

Other legal acts, pursuant to the accounting law, may impose additional requirements for chief accountants or other persons keeping books of accounts, an example of which is provided by the requirements placed on chief accountants of lending and financial (non-lending) institutions by the Bank of Russia (central bank of the Russian Federation).[15]

Thus, under the legal regulations, the principal may enter into a contract on the outsourcing of bookkeeping with a natural person, provided that such person fulfils the requirements specified hereinabove, whereas the conclusion of an outsourcing contract with a legal person is possible if it employs at least one person holding the above qualifications.

Also the tax law recognises the outsourcing of accounting, providing for the possibility of a business entity being represented by its duly authorised attorney, holding the relevant powers, who is entitled to sign tax returns.[16]

It can be concluded that with regard to entering into outsourcing contracts there are only minor limitations arising from the law in force.

[12] Федеральный закон о внесении изменений в отдельные законодательные акты Российской Федерации в связи с передачей Центральному Банку Российской Федерации полномочий по регулированию, контролю и надзору в сфере финансовых рынков от 23.07.2013 N 251-ФЗ.

[13] Федеральный закон о внесении изменений в отдельные законодательные акты Российской Федерации и признании утратившим силу законодательных актов (отдельных положений законодательных актов) Российской Федерации в свзи с принятием федерального закона „Об образовании в Российской Федерации" от 2.07.2013 N 185-ФЗ.

[14] Ibidem.

[15] Op. cit. Федеральный закон… от 23.07.2013 N 251-ФЗ.

[16] Налоговый кодекс Российской Федерации, Часть 1 от 31.07.1998 N 146-ФЗ.

3. Responsibility for accounting in the Russian accounting law

The outsourcing of accounting entails the necessity of identifying the responsibility of entities and persons involved with such organisation of accounting.

By definition, the term "responsibility" means "a moral or legal obligation of being accountable for one's own or somebody else's acts or the assumption of an obligation to take care of someone or something".[17] The adjective "responsible" describes the quality of having a sense of accountability, being ready to accept the consequences of one's acts or behaviour; being obliged to take care of something or being accountable for doing something [Słownik 1995: 443]. In each case when responsibility is defined both its object (being responsible for what?) and subject (who is responsible?) have to be specified.

At the time of centrally planned economy both the manager of an economic entity and its chief accountant were appointed to these positions by superior authorities. It was an obvious consequence of the then prevailing property relationship – the state was the only owner of assets, the investor and, thus, the main recipient of the information from the accounting system of each economic entity. The main assumption underlying the design of the accounting law was the assurance of the maximum control over socialist assets. It should be emphasised that the responsibility for the entity's accounting did not rest on its manager alone, but it was shared between its manager and chief accountant.

From the perspective of the solutions currently adopted worldwide, the division of responsibility for the entity's accounting was incorrect, as the chief accountant had, to a considerable extent, powers to exercise control over the manager of a business entity.

The provisions currently in place concerning the responsibility for accounting are distributed among the different levels of the accounting law, and therefore, while analysing the problem, both the accounting law and the Russian accounting standards have to be taken into consideration. It should be emphasised that the Russian accounting law does not stipulate any penal, financial or administrative liability for crime related to it, referring to other legal acts on these matters. However, it has to be also pointed out that regardless of the law in force, the concluded outsourcing contract should contain the provisions on the responsibility of the contractor and the principal.

Since 2013, in the Russian Federation a new accounting law has been in effect,[18] pursuant to which the responsibility for the entity's accounting rests mainly

[17] *Słownik języka polskiego*, PWN, www.sjp.pwn.pl.

[18] Op. cit. Федеральный закон… от 6.12.2011 N 402-ФЗ.

with its manager. The manager, exclusively, is responsible for the reliable presentation of the entity's financial position, its financial result and cash flows in a given reporting period and approves (in writing) all documents forming the basis for accounting records. The manager is also obliged, if he does not keep the books of accounts himself and the financial statements are subject to audit, to organise an internal audit concerning the bookkeeping and the drawing up of financial statements. It is the task of the manager of an economic entity to organise the bookkeeping and the storage of accounting documents. However, it is not the manager but the economic entity that defines the principles, time limits and circumstances under which the stocktaking is done, except for the cases when it is required by the law. The safe conditions for the storage of accounting documents and their protection from the introduction of any changes should be ensured also by the business entity.

Pursuant to the Russian accounting law,[19] in the case where accounting is outsourced, financial statements are signed by the manager of the business entity and the manager of the entity which provides accounting services, as a result of which these persons assume the responsibility for financial statements.[20]

It should be highlighted that other provisions on responsibility contained in the accounting law apply to a chief accountant, despite that fact that, as already mentioned above, the law provides that it is possible for an economic entity to operate without creating such position in its organisational structure and to refrain from in-house bookkeeping.

Concurrently, although the accounting law does not define in detail the responsibility of an external contractor, in some cases it aligns the contractor's powers with those of a chief accountant. It applies, for example, to situations where there is a difference of opinion between the manager of an entity and the entity keeping the books of accounts and the data contained in original documents (questioned by the contractor) are booked only on the basis of a written instruction given by the manager of the entity, who at the same time becomes fully responsible for the information obtained on the basis thereof.

It can therefore be assumed that if, pursuant to the law, the manager of the entity is not held responsible for some element of accounting, as a system, but this responsibility rests with the entity's chief accountant, in the case accounting is outsourced this (and only this) responsibility is transferred to the contractor.

Taking account of the way the regulations have been formulated, the significance of an outsourcing contract has to be emphasised, as it should include the detailed rules for assuming responsibility by both parties thereto.

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[19] Ibidem; Положение по ведению бухгалтерского учета и бухгалтерской отчетности b Российской Федерации, утвержденного приказом Минфина России от 29.07.1998 N 34н; Положение по бухгалтерскому учету „Бухгалтерская отчетность организации" ПБУ 4/99.

[20] Op. cit., Положение… от 29.07.1998 N 34н, p. 38.

4. Contract on the outsourcing of accounting

From the perspective of the Russian economic law an outsourcing contract is an innominate contract, which means that there are no provisions governing its conclusion. Concurrently, pursuant to the Civil Code in effect in Russia, each concluded agreement has to be read literally, which means that with regard to any doubtful issues the provisions of a contract are analysed with respect to their mutual compliance. The intention of the parties to the contract and the purpose of its conclusion represent only the subsequent step of such analysis. Although the concept of substance over form is not unfamiliar to entities entering into a contract on the outsourcing of accounting, in practice the problem remains with the choice of the type of contract, which, as a nominate contract, can be used as a contract on the outsourcing of accounting. The parties may choose between a contract on the provision of paid services or a contract on the hire of staff.

In practice the former type of contract, drawn up on the basis of the provisions of Chapter 39 of the Civil Code of the Russian Federation, is chosen more frequently. Pursuant to the Code, one of the entities (accounting office, auditing or consulting company) undertakes to provide a specific range of accounting services and the principal undertakes to pay for such services. In the case of a contract thus concluded the acceptance of services is based on the delivery and acceptance protocol and the payment is made on the basis of an invoice.

In the latter case, one entity (contractor) makes available for hire to the principal its qualified employees, who perform the activities specified in the contract. This possibility was opened up by a letter prepared by one of the Russian ministries, in which a specimen of such contract was presented.[21] Pursuant to it, the contractor assumes no responsibility related to the performance of the contracted services. His single duty is to enable the principal to make use of the services provided by employees holding the relevant qualifications, without taking any responsibility for the quality of such services. In the contract the fee for services is established, independent of the scale of work actually accomplished (the fee includes both the remuneration for employees and other costs, for example the ones related to the office space or business trips), which means in practice that the principal pays for the working time of the hired staff. Concurrently, such contract makes it possible to replace one employee with another, in the case the provision of services by a given specialist for some reasons cannot be continued. The fulfilment of such contract may not be confirmed in practice by means of a delivery and acceptance protocol concerning the performance of a given service.

[21] Письмо Управления Министерства Российской Федерации по налогам и сборам по г. Москве от 20.08.2001 N 15-06/37967 о налогообложении доходов иностранных юридических лиц по соглашениям о предоставлении персонала.

Therefore, the main difference between these two types of contracts (obviously except for the fact that one of them is drawn up on the basis of the Code and the other on the basis of a specimen contract applicable in practice)consists in the fact that in the former case the contractor assumes the responsibility for the provided services and in the latter case he does not. In the case of the outsourcing of accounting it may result in numerous problems related to the necessity of establishing the penal, administrative or financial liability arising from the breach of duties by accountants or managers of the entity placing an order for the service.

Conclusion

The outsourcing of accounting services is one of the fastest developing services for business in Russia.

In accordance with the Russian accounting law it is currently possible to contract bookkeeping out by outsourcing it to third-party entities that provide this type of services or to the so-called specialist accountants, who are not the entity's employees, either.

On the basis of the review of legal acts in effect in Russia in different periods it can be stated that significant changes have occurred with regard to the responsibility for accounting resting with the managers of an entity and chief accountants, but it does not mean that accountants (even the ones working in a third-party company that provides accounting services) have been completely released from the part of responsibility for accounting.

A contract on the outsourcing of services, including accounting services, represents in the Russian law an innominate contract, as a result of which the conclusion of this type of contract necessitates the use of a contract on the provision of services or a contract on the hire of staff. The consequence of entering into the latter type of contract is the total lack of responsibility on the part of the contractor for the quality of the provided accounting services, which may have severe effects in practice.

Those who assume accounting obligations have in practice to take into account the vague definition of responsibility for accounting on the part of the entity placing an order for such service and, despite the declared compliance with the standards effective worldwide, greater responsibility for the accounting of a business entity that rests with accountants. It should be also emphasised that as a result of legal regulations a third-party entity may question decisions taken by the managers of the entity, for example with regard to the implementation and documentation of business transactions.

References

Федеральный закон „О бухгалтерском учете” от 21 ноября 1996 N 129-ФЗ.
Федеральный закон „О бухгалтерском учете” от 06.12.2011 N 402-ФЗ.
Федеральный закон о внесении измнений в отдельные законодательные акты Российской Федерации в связи с передачей Центральному Банку Российской Федерации пономочий по регулированию, контролю и надзору в сфере финансовых рынков от 23.07.2013 N 251-ФЗ.
Федеральный закон о внесении измнений в отдельные законодательные акты Российской Федерации и признании утратившим силу законодательных актов (отдельных положений законодательных актов) Российской Федерации в связи с принятием федерального закона „Об образовании в Российской Федерации” от 02.07.2013 N 185-ФЗ.
Koczar J., 2012, Rosyjskie prawo bilansowe a identyfikacja, pomiar i wycena środków trwałych, in: T. Cebrowska, W. Dotkuś (eds.), *Środki trwałe – ujmowanie, wycena, prezentacja*, Wrocław: Wyd. UE we Wrocławiu.
Koczar J., 2014, Usługi z zakresu rachunkowości jako usługi dla biznesu – aspekt międzynarodowy, in: Z. Luty, A. Łakomiak, A. Mazur (eds.), *Branżowe problemy rachunkowości i podatków*, Wrocław: Wyd. UE we Wrocławiu.
Налоговый кодекс Российской Федерации, Часть 1 от 31.07.1998 N 146-ФЗ.
Новикова Ю., 2010, Преимущества и недостатки бухгалтерского аутсоурцинга в России, *УДК 657.01*.
Письмо Управления Министерства Российской Федерации по налогам и сборам по г. Москве от 20.08.2001 N 15-06/37967 о налогообложении доходов иностранных юридических лиц по соглашениям о предоставлении персонала.
Письмо Минфина России от 01.08.2007 N 03-11-04/2/193.
Положение по бухгалтерскому учету „Учетная политика организации” ПБУ 1/98, утвержденного приказом Минфина России от 09.12.1998 N 60н.
Положение по ведению бухгалтерского учета и бухгалтерской отчетности в Российской Федерации, утвержденного приказом Минфина России от 29.07.1998 N 34н.
Положение по бухгалтерскому учету „Бухгалтерская отчетность организации” ПБУ 4/99.
Słownik języka polskiego, PWN, www.sjp.pwn.pl [10.05.2015].
Słownik poprawnej polszczyzny, 1995, Warszawa: WN PWN.
Тохчукова Т., *Выгоден ли аутсорсинг бухгалтерских услуг*, www.i-ias.ru/publikacia/outsourcing_vigoda.html [10.05.2015].
www.audit-it.ru/articles/account/buhaccounting/a6/44036.html [1.01.2015].
www.klerk.ru/buh/articles/65975 [1.01.2015].
www.gaap.ru/articles/Bukhgalterskiy_autsorsing_i_konsalting_2013_Reyting_kompaniy [17.10.2015].
www.raexpert.ru/ratings/outsourcing/2014 [17.10.2015].
www.otchetonline.ru/pomoshh-buxgalteru/buhuchet/40856-reyting-kompaniy-v-oblasti-autsorsinga-uchetnyh-funkciy-za-2013-god-ot-quot-ekspert-ra-quot.html [17.10.2015].

Outsourcing rachunkowości w rosyjskiej praktyce gospodarczej

Streszczenie. *Zmiany, jakie zaszły w latach 90. XX w. w rosyjskiej gospodarce, umożliwiły rozwój działalności gospodarczej prowadzonej przez prywatne firmy, co spowodowało konieczność wprowadzenia daleko idących zmian prawa gospodarczego, w tym prawa bilansowego. Za jedną* *z istotniejszych należy uznać możliwość rezygnacji przez zarządzających podmiotem gospodarczym z istnienia w strukturze organizacyjnej stanowiska głównego księgowego, a nawet z zatrudniania księgowych i przekazywania prowadzenia ksiąg rachunkowych zewnętrznym podmiotom.*

Pomimo procesów globalizacyjnych i ich zauważalnego wpływu na rosyjskie prawo bilansowe wciąż należy się liczyć z tym, że prawo to może się różnić od rozwiązań przyjętych w innych krajach czy międzynarodowych standardach. Celem artykułu jest identyfikacja przyjętych obecnie w rosyjskiej praktyce gospodarczej rozwiązań w zakresie outsourcingu rachunkowości oraz dotyczących go rozwiązań prawnych.

Jako metody badawcze zastosowano analizę opisową i dedukcję. Przedmiotem badań była rosyjskojęzyczna literatura oraz akty prawne.

Słowa kluczowe: *outsourcing, rachunkowość, prawo*

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The use of quality measures of accounting information to approximate information asymmetry

Abstract. *The aim of the paper was to present the characteristics and the evaluation of the possibility to use the quality measures of accounting information for studying the level of information asymmetry between the internal and external investors of the company. The essence of the information asymmetry was characterised. The phenomenon of shaping profits was indicated as one of the reasons for the lack of credibility of financial statements. Referring to the causes of the information asymmetry, the models of the quality of accruals were indicated, as well as, the Polish Corporate Disclosure Index (PCDI), as measures enabling the relative estimation of the information asymmetry. In addition, the barriers connected with the use of these measures in practice were specified.*

Keywords: *information asymmetry, earnings management*

Introduction

A company is vulnerable to the negative consequences of the impact of the market imperfections. Information asymmetry is one of the most important. In many situations the information asymmetry can be a block in establishing the mutually beneficial contract, as it leads either to resigning from this transaction by this party, which feels ill-informed (negative selection), or to the deliberate misinformation of the party of the contract (moral hazard). The company taking measures to mitigate these effects incurs additional transaction costs. The higher the level of information asymmetry, the higher the deviations from the optimal allocation of resources by the company, and thus, the greater the losses for the whole economy. So it is worth undertaking the attempt to measure the information asymmetry, to be able to indicate the companies, for which the undertaking of actions to reduce its negative effects can have the greatest meaning. This measurement is also necessary when the Researcher wants to study the effect of information asymmetry on decisions made by companies both in reference to the operational, investment and financial activity.

The aim of the article is present the characteristics and the evaluation of possibilities to use the quality measures of accounting information to study the level of information asymmetry between the internal and external investors of the company. Performing the measurement of the information asymmetry is a very difficult task. In the literature a lot of different variables are used, which approximate the information asymmetry. Because it cannot be expressed in any natural units. It has a multiple nature, and its different aspects are usually described not directly, but indirectly, trying to quantify some features of companies. These features are considered as indications differentiating the level of information asymmetry. The article will characterise various methods for measuring the information asymmetry. Against them the assessment will be made concerning the possibilities for using methods concerning the measurement of the quality of profits in this scope.

1. Information asymmetry as one of the causes of the market imperfections

The information asymmetry phenomenon is a situation, when people have knowledge about themselves, which is not easily available to others [Begg et al. 2007: 345]. In economy, such a situation is applied to a different range of knowledge of the parties about some transaction. The party, which has all available information (full knowledge), is better informed, is defined as the agent. The party without complete information is the principal.

The theory of information asymmetry was shaped in the 60s and 70s of the twentieth century. It describes the phenomenon of uneven access to information of the market participants and making decisions in these conditions. The foundations of the analysis of the information asymmetry phenomenon were formed by George Akerlof, Michael Spence and Joseph Stiglitz, who in 2001 were awarded the Noble Prize for these achievements in the field of economics.[1] These scientists have created foundations of the theory of markets characterised by the information asymmetry. In connection with its occurrence, the economy is reaching the equilibrium below the optimal use of resources.

G. Akerlof built one of the first formal models of adverse selection, which occurs in the case of information asymmetry between the market participants. He analysed the situation, which can take place on the market of used cars. Akerlof assumed that the seller knows the condition of the car better than the buyer. The buyer without knowing the actual condition of the vehicle will be willing to pay an average market price of the given type of car. Dealers of cars in good shape, however, expect the amount higher from the average and therefore they will withdraw from the market, not being able to achieve the price matching the quality of the car. This leads to the failure of the market mechanism. The reason for this is the information asymmetry leading to the uncertainty regarding the quality of the transaction object. This may lead to the fact that the market will be dominated by the low quality products, the number of products will be smaller and the optimum Pareto will not be reached. The author suggests that in order to reduce the risk of the fraudulent conduct of people who are better informed than people ill-informed, the Country should ensure the appropriate system regulations [Akerlof 1970].

M. Spence showed that the problem of information asymmetry can be partially solved by entities aware of their advantages undertaking costly actions, which will reliably show their advantages to the society. This problem was mainly discussed with reference to the labour market, in 1973 introducing for the first time the term of signalling [Spence 1973]. He said that in many markets the employer cannot assess the abilities of the employed worker. Only after some time he develops an opinion about him. However, the employee can signal the level of his abilities incurring specific costs (e.g. of education).

J. Stiglitz states that information asymmetry, poor quality of information and thus the need to incur costs of obtaining information, make the statement of the classical economics, claiming that the competitiveness of markets is a sufficient condition of the effective allocation of resources and maximisation of the prosperity is not real. This happens because, in accordance to the assumptions of the efficient market, the market participants have full information and do not incur costs of acquiring information. With regard to information asymmetry connected to the acquisition of capital, it is worth mentioning the conclusions, which were

1 The Nobel Prize for the works on information asymmetry was received in 1996 also by A. Mirrlees (for studies between private companies and the government in the context of information asymmetry) and by W. Vickrey (for the development of operation theory in conditions, when the acquisition of complete information on the market is not possible).

drawn by Stiglitz in respect to the acquisition of the loan. Information asymmetry, according to Stiglitz, is the cause for rationing the loan – that is granting it only to some applicants [Stiglitz 1981].

The existence of information asymmetry causes the increase of uncertainty. Information can be objective (apart from the sender and recipient of the information) or subjective, that is determined in relation to the given subject, which can give meaning to information and use it for own purposes – e.g., making decisions in the company. In this case, we can talk about information as the interpreted string of signals. Given that the series of signals is processed by the specific object, which can be characterised by diverse level of knowledge, it can be perceived differently. The same scope of data can be thus the source of other information.

The information asymmetry phenomenon can thus apply not only to the difference in the access to data for two different entities, but also limitations connected with the processing and understanding of information. The barrier is, among others, man's ability to accumulate and process information. It should be added that for the processing of information we need to have specialized skills. Another problem which may occur while "reading" information is the lack of the rational approach [Kubiak 2013: 16].

Considering the problems relating to the information asymmetry we should therefore bear in mind the consequences not only of the different scope of access to it (lack of access to data, hiding data from one of the parties), but also the problem of the need for having the right knowledge for interpreting the transmitted data. Both the first and the other cause of the asymmetry occurrence can cause the occurrence of negative consequences for the parties transmitting and receiving information, as well as for their environment. One should also remember that the acquisition of information costs money.

A necessary condition for the occurrence of the information asymmetry in economy is the existence of two entities remaining in the specified relation due to concluded contracts or intending to perform some transactions. Information asymmetry will take place between these entities in case when they do not have the same scope of data on the company, or when one of the parties due to the lack of specified knowledge or skills will not be able to interpret well the available data. Uneven access to data and the problem of their proper interpretation can cause the more severe consequences in case when they apply to the relations between entities with opposing interests.

The lack of rational approach when receiving and processing the obtained message can also be the cause of information asymmetry. Human nature means data can be received and processed incorrectly due to the existence of some psychological phenomena determined by human subconscious, such as, for example:

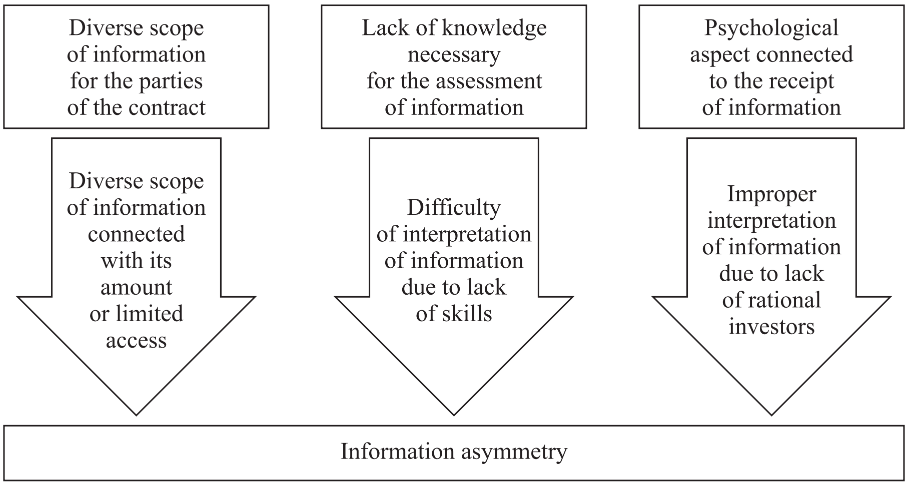

Figure 1. Causes of information asymmetry

S o u r c e: own research.

an anchoring error, conformation effect, illusion of truth, overconfidence, cognitive conservatism [more on this subject in Szyszka 2009: 211-212].

Causes of information asymmetry in relation to economic phenomena are presented in Figure 1.

2. Negative consequences of information asymmetry in the context of capital allocation

As it has already been stated, information asymmetry is one of market imperfections, which interfere with the mechanism of effective allocation of resources. In the economic literature the attention is paid to two main consequences of the information asymmetry phenomenon: negative selection and the moral hazard [Acocella 2002: 138].

In the article, the information asymmetry problem is dealt with in regard to the relationship between the internal and external investors of the company. These entities need information to make right decisions coinciding with the goal, which they want to achieve. Different interests of the parties contribute to the formation of negative results of information asymmetry. In order to achieve negative consequences of asymmetry, companies will incur transaction costs connected to the acquisition of information and with monitoring of the concluded contracts.

The problem of negative effects of information asymmetry in the aspect of capital allocation will not occur only when the company, which is the property of one person, will not obtain capitals from the outside and when the function of managing the company will not be ceded by the owner to the board. Such a situation will occur only when 100% of own capital remains in the owner's hands, who at the same time will manage the company and will continue to finance it only from retained earnings, also without using the debt. This state occurs fundamentally only in the case of micro-companies and means the company is run in the simplest organisational form.

The company's board has the full knowledge on the current state of its finances and plans future actions. External investors of the company largely base on information passed by the board. This can result in the following negative consequences:

– *underinvestment*,
– *overinvestment*,
– value transfer due to the *assets substitution effect*, or caused by the change of relations between the financing with debt and financing with own capital.

Underinvestment occurs when the company resigns from the implementation of the investment, which in case of the full access to information would be profitable. Investors due to the lack of some information on the company and planned investments have a problem with the proper assessment of quality of the project and therefore expect too high return rate in relation to the incurred risk. The consequence of this is the use, in the assessment of effectiveness of the investment, too high discount rate, what can result in resigning from projects, which in conditions of full information would have a positive net present value (NPV). Capital providers who do not have full knowledge on the quality of projects of individual capital receivers, can average their expected return rate, what will mean either – as it has been mentioned above – lack of making investments in the case when the expected return rate from the investment is lower than desired return rate by investors, or the company incurring the higher capital cost (when the expected return rate is higher than desired). Another reason for the resignation from the investment due to difficulties with estimating its value, apart from the high desired return rate, can be the credit refusal (credit rationing). It can involve the refusal or limitation of financing and concern both companies undertaking highly or little risky projects – due to difficulties of their proper assessment.

Underinvestment can also be connected to the occurrence of the phenomenon of negative selection. Such a situation can appear when the company is in a difficult financial situation and at the same time has an attractive, but endowed with risk, project with the positive NPV, which requires funding with own capital. Then owners can resign from undertaking the project with positive NPV, as in the case of success, the benefits will be taken mostly by the creditors, and the potential losses will be borne mostly by the owners [Myers 1977].

The problem of overinvestment means the realisation of investments, which are characterised by the negative NPV value. It is possible in the conditions of information asymmetry and results from the phenomenon of moral hazard. In this case, the hidden actions are made by the board, which wants to implement own goals, inconsistent with the goals of the owners or creditors. Accepting the investment with the negative NPV for implementation, with the simultaneous presentation to other stakeholders as viable, enables the managers to reach the material benefits connected to its implementation, or raising their prestige. Therefore, in this case the problem is the very difficult acquisition of real information about the planned investments, in relation with the intended, hidden actions of the board.

The overinvestment can also take place when as a result of information asymmetry investors have defined the average return rate as too low in relation to the real level of risk of the investments in question. In this case the investments can be financed, which with the full access to information, due to higher expectations of investors, would not be beneficial. The situations of overinvestment presented above therefore unfortunately lead to the sparing of capital to inefficient companies.

Transfer of values between the stakeholders of the company can take place through substitution of assets or the change of relations between financing with particular capitals. The substitution of assets is the replacement of safe assets with more risky assets. Such a situation occurs already after concluding the contract and sharing the capital by the investor. This action of the board will be the action to the detriment of entities donating the capital for the disposal. The value of the foreign capital provided by the creditors is in fact constant, and in the case of making investments with higher than expected when entering into contract risk leads to the fact that in the case the project fails and the company goes bankrupt, the value of debt will decrease. While in the case the investment is successful, the whole premium for the risk will be taken by the owners.

Transfer of values between owners and creditors can also take place through the increase of the debt rate without the simultaneous investment of the borrowed funds. Incurring debt in order to pay the owners, for creditors means the reduction of values of their claims in relation to the existing assets of the company. In such a situation occur changes only within the structure of capital, and this does not entail changes within the property. The existing creditors due to the increased financial risk will have to reckon with the decrease of the debt value.

3. Problem of information asymmetry measurement

The basic problem of conducting studies of the relation of information asymmetry with the behaviour of the companies is the difficulty of information asymmetry measurement. Because it cannot be observed directly. Its direct measurement would have to entail the specification of differences within the information owned by particular stakeholders of the company. Therefore, we should accurately determine the amount and content of information available to the internal investors and available to the external investors, as well as assess their importance for the decision-making. Such quantitative and qualitative grasp of the diversity of access to information would allow the direct specification of the level of information asymmetry in companies. Apart from the tremendous effort of such studies, the barrier of their implementation is the lack of possibilities to acquire such data. Researchers are therefore left with the indirect measurement of information asymmetry. Approximation of the level of information asymmetry is done based on the occurrence of premises indicating the diversification of its level. These premises can have a different nature and hence a large number of measurement methods. Below we can find the characterised measurement methods used in studies for information asymmetry within the capital allocation. These methods are grouped according to the criterion of their relation with the causes for the formation of information asymmetry.

Methods relating to the number and accuracy of opinions and forecasts of independent specialists result from both main causes of information asymmetry. This is because the results of particular indicators within this method depend both on the amount of available data and on the difficulty in their proper interpretation. The main subject of analysis in the article is the use of quality measures of accounting information (quality of earnings) to the information asymmetry measurement. These measures in the context of the above presented scheme should be placed within the methods specifying companies exposed to the occurrence of the problem of poor interpretation of available information.

The causes of information asymmetry are, as it has already been stated: diverse scope of information and difficulty of its interpretation. The diverse scope of information can result either from the diversification of the amount and quality of information generated by companies, or due to the fact of limiting access to some information for external investors.

The first group of methods are methods determining the features of companies that determine the diversity of the numbers of information they generate regarding their financial situation and planned projects. Meters used in this group allow you to measure features, such as: size, age, public nature of the company, that is fea-

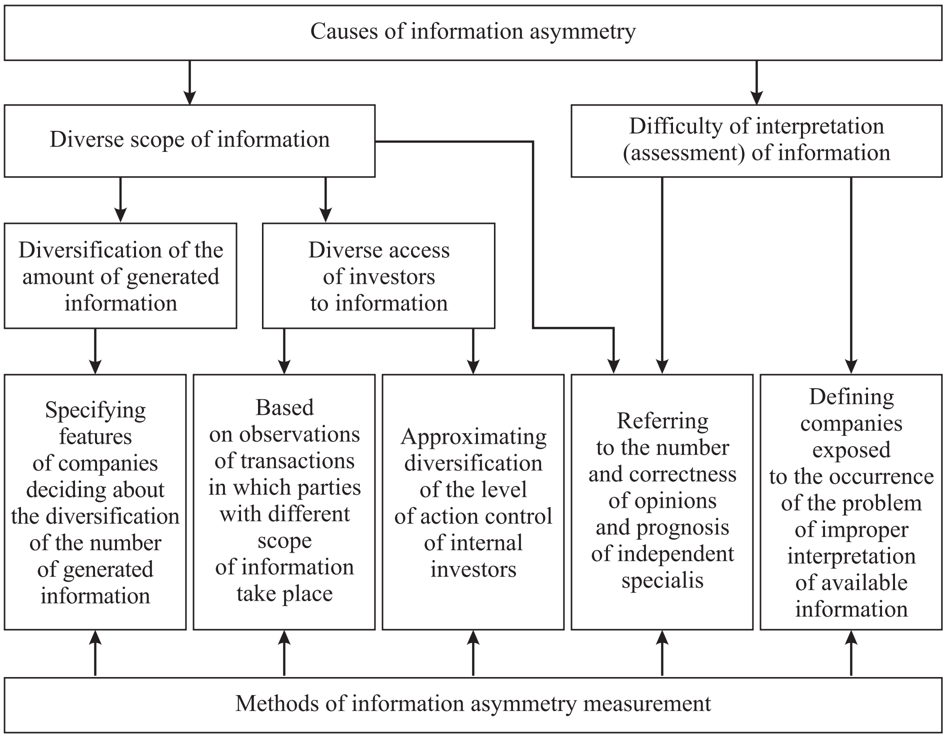

Figure 2. Measurement methods of information asymmetry divided according to the criterion of causes of their formation

Source: Kubiak 2013: 119.

tures often connected with quality and quantity of information passed to external investors, as well with the possibility of their verification.

The diverse scope of information available to investors is also a reason for separating the second group of methods, i.e., based on observations of market transactions concerning the given company, in which you can expect the share of parties with a different scope of possessed information. This group of methods can include the indicators of the market microstructure and indicators specifying the share of people managing the company in concluding transactions as securities.

The third specified group are methods approximating the diversification of the level of control of actions of internal investors. It is related with the possibility of hiding actions conducted by internal stakeholders from external stakeholders, and thus it is connected to the existence of asymmetry existing after concluding the contract. It is therefore linked to the occurrence of groups with different interests.

Some companies will be more exposed to the occurrence of asymmetry in relation to the smaller control of actions of internal investors. Less precise control of actions usually takes place in the case of companies with great concentration of properties and connection of ownership functions with the managerial ones, as well as companies with a short period of cooperation with banks.

The second above-mentioned cause of information symmetry is the difficulty of the proper interpretation of information. As it has already been mentioned, the more specialised the knowledge required for the proper reading of data, the greater the exposition to the occurrence of information asymmetry. Given this asymmetry source, we can specify the group of methods referring to the number and correctness of opinions and forecasts of independent specialists, respectively with the present and future situation of the company and the group of methods specifying the companies exposed to the occurrence of the problem of the improper interpretation of available information. In the case of the first of these groups of methods of information asymmetry measurement we can distinguish the number of analysts giving opinion about the company, the index of errors of forecasts of analysts, or the assigned rating. The greater the number of specialised opinions, the smaller information asymmetry can be expected. Specialists are to help investors gathering all available information and interpret them thanks to the specialist knowledge.

The last separated group (covering methods referring to the problem of exposure to the improper interpretation of available data) includes: indicators specifying the structure of assets, level of investment expenditures more difficult to assess by investors, measured rate of company's growth (companies with a greater rate of growth usually require greater attention and knowledge of investors, necessary for the proper assessment of their actions) and indicators of the profit quality.

Given the above considerations, we should remember that the studies do not perform the accurate measurement of the level of information asymmetry, but its estimation, approximation. We cannot measure information asymmetry directly, but we can perform the arrangement of companies according to its relative level.

4. Earnings management in companies in the context of information asymmetry

Earnings of every enterprise are closely scrutinized by investors, financial analysts or boards of directors in order to determine the attractiveness of a particular stock or to reward the executives. This is the reason why the management of a company sometimes decides to deliberately manipulate the earnings, so that the pre-determined targets can be achieved. Such situation is often called "earnings management" [Brzeszczyński et al. 2011: 137-138].

Earnings management is the choice of a manager of accounting policies or other actions, including voluntary earnings forecasting, voluntary disclosure, and estimation of accruals, to affect earnings intentionally. Earnings management may undermine the credibility of financial statements, which provide useful information for stakeholders in well-functioning capital markets. Most studies in the earnings management literature have focused on two types of general earnings management: accrual management and the manipulation of real economic activities [Man, Wong 2013: 400]. An example of an accounting choice is adopting the depreciable life for new plant at the high end of industry norms or at the level lower than the high end of industry norms. An example of operating decision is a delay in the execution of normal maintenance procedures in one period in order to reduce maintenance costs in that period and to perform this procedure in the following period [Brzeszczyński et al. 2011: 137-138].

It is important to distinguished the so-called "*efficient earnings management*" from the so-called "*opportunistic earnings management*." The opportunistic grasp assumes that managers undertake attempts to shape the financial results in order to mislead shareholders in terms of the financial situation of the company. Therefore, the use of the situation of information asymmetry takes place between managers and external stakeholders in order to achieve personal benefits by managers, e.g., in the form of greater remuneration for achieving results in the company. While the second approach assumes that the formation of financial results is a form of communication between managers and external stakeholders [Piasecki 2015: 219-220].

Shaping the financial results therefore affects the quality of financial statements. Unfortunately, this increases the information asymmetry between the company and external investors. Higher quality of financial statements decreases information asymmetry, therefore, the greater the scope of shaping the financial results by managers, the smaller the effectiveness of implemented investments.

As indicate Gary Bidle, Gilles Hilary and Rodrigo Verdi, firms with higher financial reporting quality also are found to deviate less from predicted investment levels and show less sensitivity to macroeconomic conditions. These results suggest that one mechanism linking reporting quality and investment efficiency is a reduction of frictions such as moral hazard and adverse selection that hamper efficient [Biddle et al. 2009: 112].

Shaping profits in the form of operations with the financial reporting occurs because managers have the ability to make choices of different methods and estimations within the accounting. Usually this type of behaviour is considered cheating and acting to the detriment of stakeholders, in the vast majority of works in literature shaping the financial result is assessed negatively [Wójtowicz 2010: 7].

The empirical findings presented by Janusz Brzeszczyński, Jerzy Gajdka and Tomasz Schabek provide clear support for the existence of earnings management practices driven by the desire to report positive profits [Brzeszczyński et al. 2011: 137-148].

5. Possibilities to measure information asymmetry using quality measures of accounting information

Referring the data directly resulting from financial statements measures used to determine the quality if accounting information of the company can be used for approximation of the level of information asymmetry. As it can be assumed that managers can, in order to show more beneficial results of the company at the given moment (e.g. before the issuance of shares), take actions aimed at its increase, using the right accounting of economic operations. This most often occurs through the "manipulation" with the size of accruals. The decrease of quality of thus formed profit causes problems with the proper interpretation of indicators determining the financial situation of the company. Exposure to such a situation can be determined using models examining the credibility of accruals in terms of their impact on the quality of the profit reported by the companies.

Gemma Lee and Ronald Masulis verified the hypothesis, that poor accounting information quality raises uncertainty about a firm's financial condition for outside investors. They argue that the quality of a firm's accounting information, is a reasonable proxy for asymmetric information between managers and outside investors, since accounting statements are the primary source of information about firm performance available to outside investors. Its quality should be directly related to investor uncertainty about a firm's financial health and past performance. The Authors show that poor accounting information quality is associated with higher raising underwriting costs and risk. This accounting effect lowers demand for a firm's new equity [Lee, Masulis 2009: 447].

In literature we can find many models of estimations of the values of accruals, aimed to measure the quality of the accounting information. There is no commonly accepted way enabling the estimation of the values of particular positions of the financial report shaped purposefully by the manager. Basically, we can distinguish two approaches to the measurement of the scope of shaping financial results: analysis of shaping the profits and analysis of the balance items. In the models of analysis of the balance items it is assumed that it is possible to determine values of discretionary accruals and nondiscretionary accruals. However, in this case the discretionary accruals should not be understood as the specific position in the balance grasped in accordance with the act on accounting. Discretionary accruals are treated as values of assets and liabilities, which have their source in shaping the outcome [Piasecki 2015: 222].

Lee and Masulis proposed model based on the earnings accruals models of Dechow and Dichev and McNichols. These models can measure accounting information quality based on the standard errors of residuals from a model mapping yearly current accruals into operating cash flows in the prior, current and subsequent years estimated in each of the past 5 years, where larger standard errors imply poorer quality accounting information. Lee and Masulis propose a new measure of accruals quality, which incorporate a firm fixed effect. This measure covers unobserved firm characteristics that are time invariant, such as internal accounting policies and cash flow characteristics [Lee, Masulis 2009: 447]:

$$C_{Aj,t} = {}_{cj} + {}_{\varphi 1}CF_{Oj,t-1} + {}_{\varphi 2}CF_{Oj,t} + {}_{\varphi 3}CF_{Oj,t+1} + {}_{\varphi 4}\Delta Sales_{j,t} + {}_{\varphi 5}PP_{Ej,t} + {}_{vj,t},$$

Where:

C_A – change in working capital (accruals),

CF_O – operating cash flow,

Sales – total revenue,

PPE – property, plant, and equipment [more on this subject in: Francis et al. 2004: 967-1010].

The poorer the quality of accounting information measured based on the accruals, the greater the level of information asymmetry [Lee, Masulis 2009: 467]. In the light of the theses presented in the previous chapter, it should be assumed that managers can, in order to show the more beneficial results of the company at the given time (e.g. before the issuance of shares), manipulate the size of accruals. This of course does not exhaust all the conditions of the occurrence of information asymmetry phenomena, however, it can be a useful tool of measurement of asymmetry level in studies concerning the formation of the structure of capital of companies in the light of theory of *market timing*.

Quality measures of accruals are not the only way of measuring the quality of information related to information asymmetry. According to the author, for measuring the quality of information we can also use the “disclosure indexes.” These are indicators enabling the specification of the range of disclosures in financial statements.

Disclosures in accounting inform investors about accounting strategies and methods used while making financial statements. As it is observed by Marek Gruszczyński in the paper *Empirical finances of companies. Financial microeconometrics* [Gruszczyński 2012: 190] transparency in accounting disclosures minimises the problems of the agency, because it reduces information asymmetry between people managing the company and shareholders. In this paper the author presents the structure of several gauges, which were formed for the public companies in Brazil, Thailand and Hong Kong, Portugal, China [Gruszczyński 2012: 190-196].

Polish Corporate Disclosure Index (PCDI) is the outcome of the research conducted by Warsaw School of Economics led by Gertruda Świderska. PCDI value represents the disclosure quality of three annual reports: financial statement (weight 66%), company report (weight 24%) and corporate social responsibility report (weight 10%). There are 9 areas of reporting taken into account. In each area a number of disclosure issues were examined. Within each area was given weight to groups of questions (3-4 weight depending on the area). Altogether the disclosures were investigated in 28 elements of annual reports. Polish corporate disclosure index (PCDI) is calculated as the weighted average of all 172 disclosure items examined for each company. The weights were generated by the group of experts composed of 12 accounting, including 5 certified accountants. In the case of the most important reports – financial statement – were taken into account the following areas: Non-material assets, financial risk, fair value, accounting for derivatives, leasing, segments of activity, reserves [Świderska (ed.) 2010: 109-112].

The PCDI value refers to the reliability of financial reports and therefore can, according to the author, constitute one of the ways for measuring the quality of information generated by companies.

6. Limitations in using quality measures of accounting information for the approximation of information asymmetry

As it has already been observed above, the asymmetry measurement is very difficult and essentially consists of its approximation using conditions affecting its intensity. Therefore, there is a threat of the occurrence of limitations connected with the degree to which the measure in question reflects the diversity of the level of information asymmetry, and to what extent it expresses the intensity of other features characterising the company. Considering the limitations, it is also worth referring to the scale of possibilities of using specific measures for measuring information asymmetry in companies. The assessment of usefulness of quality measures of accounting information for information asymmetry measurement will begin from the second of the above-mentioned issues.

Measurement of asymmetry using profit quality measures can be effective especially in the case of research aimed at identifying companies exposed to “manipulation” by managers of the size of profits before the moment of acquisition of the external capital and in order to present the beneficial situation of a company listed on the public market in periodic reports. This problem therefore applies mostly to listed companied and in relation to them the use of quality measures of accruals to information asymmetry can be recommended. Nevertheless, in the case of non-listed companies, such actions can also take place, e.g., in order to improve the indicators determining the assessment of the creditworthiness by the bank, especially in the case of entities, which have a problem with the positive assessment of their financial situation.

The second problem connected with the scope of possibilities to use the above discussed quality measures of accounting information are the limitations connected with the relatively small group of entities, which are obliged to draw up the complete financial reporting. This problem also affects the measurement of the Polish Corporate Disclosure Index (PCDI) (e.g. the limited scope of companies making *corporate social responsibility (CSR) report*), and the measurement of quality of accruals (some models require access to data from the cash flow – and they are made only by companies subject to the mandatory audit of financial statements).

Referring to the problem of the threat by the situation in which the given measure to a large extent defines determinants other than information asymmetry about decisions on allocating capital, it is worth quoting the task of G. Lee and R. Masulis. They point out that using the estimating models, the quality of accruals for determining the level of information asymmetry one should pay attention to the fact that these models do not include the effect of the industry or the level of uncertainty regarding the results of the company [Lee, Masulis 2009: 466-467]. Therefore, there is a risk that this method will determine to a greater degree the risk of running the business than information asymmetry.

It is also worth paying attention to difficulties of the study in Poland concerning the effect of accruals – and in particular the provisions on the financial result. As noted by Ewa Walińska and Bogusława Bek-Gaik, the analysis of provisions titles is very difficult due to the way of revealing information in notes, which are often too synthetic and unreadable. Particularly difficult is the analysis of impact of provisions reduction on the financial result, as the size of companies did not show in notes whether the cause for solving the reserves was their use or the lack of use [Walińska, Bek-Gaik 2012: 368-370].

Conclusions

Information asymmetry causes the inefficient allocation of resources. It results not only from the difference in access to data for internal and external investors, but also from limitations connected to the information interpretation. In this aspect for the approximation of information asymmetry we can use the quality measure of the accounting information. The negative impact on the quality of financial reports may come from the policy of shaping earnings conducted by managers. Unfortunately, this increases information asymmetry between the company and external investors. Shaping the earnings most often takes place by "manipulating" the size of accruals. Therefore, the models based on credibility of accruals in the aspect of their impact on the earning quality of the company are commonly used in this context for the approximation of information asymmetry.

According to the author, for measuring the quality of the transferred information we can also use "disclosure indexes." These are indicators that allow defining the scope of disclosures in financial reports, although in Poland they are fundamentally used only in case of listed companies.

Among the main restrictions regarding the use of methods described in the article we should mention the fact that models estimating the quality of accruals can to a greater extent describe the level of risk of the company's operation than information asymmetry. Moreover, it is also worth paying attention to the difficulties of the study in Poland regarding the impact of accruals – especially reserves – due to their great degree of illegibility and generalisation in financial statements.

References

Acocella N., 2002, *Zasady polityki gospodarczej. Wartości i metody analizy*, Warszawa: WN PWN.

Akerlof G., 1970, The Market for 'Lemons': Quality Uncertainty and the Market Mechanism, *The Quarterly Journal of Economics*, Vol. 84, No. 3.

Begg D., Fischer S., Dornbusch R., 2007, *Mikroekonomia*, Warszawa: PWE.

Biddle G., Hilary G., Verdi R., 2009, How does financial reporting quality relate to investment efficiency?, *Journal of Accounting and Economics*, Vol. 48, No. 2.

Brzeszczyński J., Gajdka J., Schabek T., 2011, Earnings Management in Polish Companies, *Comparative Economic Reasearch. Central and Eastern Countries*, Vol. 14, No. 3.

Francis J., LaFond R., Olsson P., Schipper K., 2004, Costs of Equity and Earnings Attributes, *The Accounting Review*, Vol. 79, No. 4.

Gruszczyński M., 2012, Empiryczne finanse przedsiębiorstw. Mikroekonometria finansowa, Warszawa: Difin.

Kubiak J., 2013, *Zjawisko asymetrii informacji, a struktura kapitału przedsiębiorstw w Polsce*, Poznań: Wyd. UEP.

Lee A., Masulis R., 2009, Quality of Accounting Information and Expected Floation Costs, *Journal of Financial Economics*, Vol. 92.

Man C., Wong B., 2013, Corporate Governance and Earnings Management: A Survey Of Literature, *The Journal of Applied Business Research*, Vol. 29, No. 2.

Myers S., 1977, Determinants of Corporate Borrowing, *The Journal of Financial Economics*, Vol. 5.

Piasecki M., 2015, Kształtowanie wyników finansowych a wielkość zaciąganego kapitału obcego spółek notowanych na Giełdzie Papierów Wartościowych w Warszawie, *Finanse, Rynki Finansowe, Ubezpieczenia*, No 73.

Spence M., 1973, Job Market Signaling, *Quarterly Journal of Economics*, Vol. 87.

Stiglitz. E., Weiss A., 1981, Credit Rationing in Markets with Imperfect Information, *The American Economic Review*, Vol. 71.

Szyszka A., 2009, *Finanse behawioralne. Nowe podejście do inwestowania na rynku kapitałowym*, Poznań: Wyd. UE w Poznaniu.

Świderska G. (ed.), 2010, *Wpływ zakresu ujawnień informacji na poprawę ochrony inwestorów oraz pozycję konkurencyjną emitentów papierów wartościowych*, Warszawa: SGH.

Walińska E., Bek-Gaik B., 2012, Rezerwy jako istotna kategoria kształtująca wynik finansowy spółek, *Finanse, Rynki Finansowe, Ubezpieczenia*, No. 50.

Wójtowicz P., 2010, *Wiarygodność sprawozdań finansowych wobec aktywnego kształtowania wyniku finansowego*, Kraków: Wyd. UE w Krakowie.

Wykorzystanie miar jakości informacji księgowej do aproksymacji asymetrii informacji

Streszczenie. *Celem artykułu było przedstawienie charakterystyki i ocena możliwości wykorzystania miar jakości informacji księgowej do badania poziomu asymetrii informacji pomiędzy wewnętrznymi a zewnętrznymi inwestorami przedsiębiorstwa. Scharakteryzowano istotę asymetrii informacji. Wskazano na zjawisko kształtowania zysków jako jeden z powodów braku wiarygodności sprawozdań finansowych. Odnosząc się do przyczyn asymetrii informacji, wskazano na modele jakości rozliczeń międzyokresowych oraz na Polish Corporate Disclosure Index (PCDI) jako na miary umożliwiające względne szacowanie asymetrii informacji. Określono także bariery związane ze stosowaniem tych miar w praktyce.*

Keywords: *asymetria informacji, kształtowanie zysków*

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The state and development trends of management accounting in the global environment

Abstract. *The objective of the paper is to discuss the state-of-the-art and development trends of management accounting practice in a global environment. This was done on the basis of research conducted by other authors in the context of research projects carried out by Ernst and Young, the Chartered Institute of Management Accountants (CIMA), and the Institute of Management Accountants (IMA).*

In the first part of the article the research findings on the state of management accounting at the turn of the XX and XXI centuries were presented. Next, the results of research conducted at the beginning of the past decade were elaborated on. After which, the changes in accounting practice and perception of the role played by specialists in this area were discussed by referring to research from the first decade of the XXI century. In the last part of the paper the most important trends in management accounting postulated by other researchers were described and the author's own predictions on the developments in the field of managerial accounting were presented.

Keywords: *management accounting, state-of-the-art, development trends*

Introduction

Management accounting evolves in recent years dynamically, primarily in response to increasing demand for managerial information that will help making decisions to gain competitive advantage in a global environment. In the last decade, there were a lot of phenomena, like global economic crisis and its consequences. International standardization and harmonization of financial accounting, as well as the demand from the external stakeholders to develop the so-called social responsibility reporting led to the convergence of financial accounting and managerial accounting and the role of accounting professionals is now more visible in the international arena. The development of information technology nowadays is as dynamic as never before. There is also increasing importance of shared services centers, which deal with the tasks previously reserved for internal management accounting professionals. These factors cause a legitimate question about the state-of-the-art and development trends of management accounting in practice.

Management accounting has always been an area dedicated to support decision making processes, thus taking into account dynamic changes in the business environment as well as technological advances there is a strive to change the practice of management accounting and the role played by the managerial accounting professionals.

The aim of the paper is to identify the state-of-the art of management accounting it the beginning of the twenty-first century and to outline the fundamental development trends in the field of management accounting in practice. The argument pointed out in the paper is that the changes in management accounting practice consistently reflect changes in global environment. Research findings presented in the article are based on the literature review of empirical research conducted around the world by other authors since the turn of the twentieth and twenty-first centuries. In particular, the article uses the research conducted by experts from Ernst & Young, Chartered Institute of Management Accountants (CIMA), and the American Institute of Management Accountants (IMA).

1. Management Accounting at the turn of XX and XXI centuries

At the end of the last century academic journal "Management Accounting" along with consulting company Ernst&Young conducted survey research among members of *Chartered Institute of Management Accountant*, with regard to the views of the management accountant's future roles in XXI century.

The survey results indicated high expectations directed toward the management accounting professionals, who – according to the respondents – should play a much greater role in the organization and influence the development of its strategy. Moreover, managerial accounting specialists should have greater access to information so that they can become "change agents" and information managers. The research findings also take into account the opinions on the increasing convergence of management accounting. In particular, study confirms a few traits characterizing the future role of management accounting professionals. Thus, future scenarios referring to management accountant's role in the organization were ranked by degree of the relative importance perceived by respondents as follows [Evans et al. 1996: 21]:

1) strategic cost management,
2) wider organizational role,
3) integrated performance measurement,
4) change agents,
5) information managers,
6) convergence of accounting roles,
7) management accounting empowerment,
8) information accessibility.

Other studies conducted at the end of the twentieth century in the UK revealed that management accounting specialists predicted that there were ten tasks vitally important for them over the past five years [Burns, Yazdifar 2001: 34]:

– business performance evaluation,
– cost and financial control,
– interpreting and presenting management accounts,
– planning and managing budgets,
– interpreting operational information,
– profit improvement,
– designing and implementing new information systems,
– implementing business strategy,
– cost-cutting,
– capital expenditure evaluation and control.

In 2003 consulting firm Ernst & Young has conducted an extensive survey among 2000 members of the Institute of Management Accountants aimed to recognize the changing role of management accounting specialists at the beginning of the twenty first century [Garg et al. 2003]. The research was repeated after a decade in 2012, which made it possible to observe changes in the practice of management accounting over ten years. Research carried out in 2003 as well as in 2012 were cross-sectional, and covered many sectors in various countries in small, medium-sized and large companies.

Analysis of the research findings derived from the first survey carried out in 2002 leads to the six important conclusions [Garg et al. 2003; 2003 Survey of Management].

1. Cost management is regarded as a key contributor towards achieving strategic objectives and is an important part of the strategic goals of companies. 80% of respondents reported that cost management was important to their

organization's overall strategic goals, and 75% believe that the state of the economy has generated greater demand for cost management and cost transparency.

2. Decision makers and enablers characterize the need for "actionable" cost information to be their top priority. There is agreement and alignment between decision makers and enablers on the priorities facing the management accounting function. Both decision makers and enablers believe that the top two priorities for cost managers are to generate cost information and reduce cost and drive efficiency. Decision makers clearly felt that the next most important priority was contributing to core strategy. Decision enablers saw the next most important priorities to be improving reporting processes and setting performance standards for the enterprise.

3. Despite the need for cost information, several factors are perceived to impair cost visibility. The survey revealed various distortion factors that have clouded visibility into "true" costing in most organizations. 98% of all respondents agree that there is some distortion due to certain factors. The most popular distortion factor reported by them was overhead allocations (30%), followed by shared services (20%) and greater product diversity (19%).

4. Most respondents did not consider adopting new cost management tools and systems in the current economic environment. The top initiatives listed by corporations were new budgetary procedures and ERP implementation. When these tools have been adopted, they have usually been homegrown.

5. Despite the introduction of new tools, traditional management accounting tools are still used very frequently. Examples of such tools were: quantitative techniques, traditional absorption costing, operational budgeting techniques, overhead allocations. Modern tools and techniques, such as target costing, value-based management, and theory of constraint analysis are not popular and still strive for adoption.

6. Management buy-in is seen as the most significant trigger for adoption. Adequate technology and in-house expertise are also critical. Decision makers require a clear and quantified value proposition prior to implementing new tools.

In may be concluded from the research conducted at the turn of the centuries by other Authors and described above that management accounting professionals become business partners in decision-making and problem-solving processes. It may be also stated that among the methods used by these specialists, traditional methods still dominate, but they were seen as inadequate in the changing business environment and according to the respondents these instruments did not provide relevant and reliable information. There was a very interesting phenomenon, because that time the use of absorption costing was stressed, whereas this costing system had previously been heavily criticized as unsuitable for decision-making. This phenomenon can be explained by unwillingness of managers to apply sophisticated methods of cost management. It should be also pointed out that at the turn of the centuries the stronger role of management accounting professionals as business consultants and internal consultants was emphasized.

2. Management Accounting at the beginning of the second decade of the XXI century

In 2003 Ernst & Young and Institute of Management Accountants conducted a comprehensive research in the group of professionals similar to the respondents in 2003 study. The most important goal of the study was the same as for the original 2003 survey. The objectives were stated as questions in 2003, but reevaluated in the 2012 survey as follows [Clinton, White 2012a]:

– have there been fundamental changes in the role of management accounting?,
– do existing tools fulfill the changing needs?,
– which tools are needed? Which are being adopted?,
– what role have new technologies played?,
– which factors constrain or accelerate adoption of these tools?

There are seven important conclusions derived from the research conducted in 2012 in comparison to the study performed in 2003 [Clinton, White 2012a, 2012b].

1. New tools are largely not considered relevant. Key findings from the 2003 survey was the degree to which improving cost information was not a priority. Results in 2012 were similar, because improving cost information is still not a priority, even in the continuing recession. When examining the current status of management accounting tools in their organizations, in 2012 respondents not only rejected the adoption of virtually every significant new tool, but they viewed these tools as "not relevant."

2. The most important priority shifted to cost reduction and driving efficiency. Although responses were similar, the most important priority for respondents in 2003 was generating relevant and actionable cost information that senior management could use for making decisions. In 2012, however, the most important priority was cost reduction and driving efficiency. The 2012 survey suggests that cost reduction itself is more important than generating relevant cost information.

3. Factors reflecting constraints and triggers for adoption of best practices have shifted. The biggest constraints to adoption of new or best practices included in 2012 lack of worker time. It was considered a bigger constraint than management buy-in, even though management buy-in was the biggest trigger for adoption.

Next to management buy-in, adequate technology was the most important trigger in 2003 for both large and small companies but was listed fifth as a constraint for large and small companies in 2012.

4. The economic downturn has generated a greater demand for more accurate costing, but cost reduction is not considered the primary way to improve performance. Demand for accuracy in costing has increased because of the continued economic downturn, but results suggest that respondents did not consider cost reduction the primary impact to their bottom lines in 2012 as they did in 2003. Most organizations may have focused on cost reduction to the degree that they have exhausted all effective ways to reduce costs and are now looking for other ways to improve profitability. Given the concerns with the quality of cost information and the low priority placed on making improvements, it also is possible that organizations are focusing elsewhere because they do not know how to proceed with further cost reduction or generate more insightful cost management information.

5. Availability of investment resources was not a significant constraint to pursuing improved cost management information. Adequate technology was listed fifth out of six constraints for both large and small companies in 2012. Despite great financial austerity, lack of investment resources was not a significant constraint in 2012 for most respondents. In comparison, it was a significant constraint in 2003.

6. The use of tools (not development) is seen as most critical to implementation and adoption. Business intelligence emerged as the most critical item for implementation in 2012 for both large and small companies. The perceived importance of data warehousing tools, however, fell in 2012 list of priorities from the top place in 2003 when they were considered the most important tool for large companies.

7. The impact of in-memory and cloud technology. A new question for the 2012 survey and a new topic to the marketplace, in-memory technology is expected to have a major impact on reduction of response times and program run-times. Regarding cloud technology, it may be too soon to tell because this new technology is not yet completely proven or well-understood. Consequently, respondents' perceptions about this area are not well developed.

It turns out from the above discussion that management accounting in the XXI century is much more oriented towards data processing based on modern information technology. Moreover, managerial accounting practice was based on the sharing the best practices as a response to more dynamic global environment. In general, the use of information technology should be considered as a very important factor in development of management accounting. In particular, advanced data processing systems like business intelligence may be perceived as dominant factors influencing managerial accounting practice. Those systems should be especially designed for the purposes of internal reporting in order to provide easier access to managerial knowledge and thereby support decision-making in real time. It also seems that cloud computing started to play an important role in managerial accounting computations and analyses.

3. Perspectives of Management Accounting Development

Results of research, described in the foregoing paragraphs, reflect the state-of-the art in the field of management accounting at the beginning of the XXI century, as well as characterize the specific changes in the perception of management accounting methods and the role of managerial accounting specialists. Those results raise a question relating to the directions of management accounting in the near future.

In 2012 M. Fraser refers to five basic areas that should be of interest to specialists in management accounting in the future [Fraser 2012].

1. Good accounting goes beyond compliance and is about providing useful information to management and strengthening accountability processes.
2. Managerial accounting specialists should improve investment appraisal techniques, because managers may be missing opportunities if accounting specialists do not use the full range of available investment assessment tools.
3. Performance management system should be revised, because various economic conditions and different organizational strategies require different thinking and behavioral patterns.
4. Management accounting tolls should be developed to better understand cost drivers in the organization. Management accountant should perform the role of financial advisor to support manager in decision making.
5. The emphasis should be placed on planning, budgeting and forecasting. There are important aspects in forecasting – sharing it and having those who own it simultaneously accountable for it. Moreover, good communication is also required.

Much more extended look at the development trends in the field of management accounting was proposed by G. Cokins. He described seven major trends that would characterize the development of management accounting in the next decade [Cokons 2013; 2014].

1) expansion from product to channel and customer profitability analysis,
2) management accounting's expanding role with enterprise performance management,
3) the shift to predictive accounting,
4) business analytics embedded in EPM methods,
5) coexisting and improved management accounting methods,

6) managing information technology and shared services as a business,

7) the need for better skills and competency with behavioral cost management.

The first trend suggests that management accounting should support the sales and marketing functions. A company needs to know the best types of customers to retain, grow, or to delete. To create value for shareholders, a company also needs to know how much to spend retaining, growing, winning back, and acquiring each type of customer. A company can unnecessarily spend excessively on loyal customers and therefore destroy shareholder wealth. In contrast, it can spend too little on marginally loyal customers and risk their defection to a competitor. Without this information, financial performance falls short of its full potential.

The key point in the second trend is integration. The various components of performance management are interrelated. Commercial software increasingly provides integration, so, for example, when profitability information is calculated, it is reflected directly in the performance measures of a balanced scorecard or operational dashboards.

Third trend reveals a major transition from management accounting for reporting costs and profits to managerial economics for decision support and analysis that impact the future. Business analytics is about investigation and discovery, and creates questions. Further analysis stimulates more complex, and more interesting questions, and business analytics is able to answer these questions in order to support decisions making process. This is why fourth trend recognizes that progressive accounting functions now realize that competency and capabilities with analytics provides a competitive edge.

Fifth trend demonstrates that the more progressive financial managers and their management accounting specialists are considering the various needs of different types of managers in their organization. Nowadays there is a strong need to integrate various managerial accounting tools and develop instruments adjusted to specific managerial needs. Contemporary management accounting is perceived as a tailor-made accounting designed in an organization taking into account various contextual factors [see for further elaboration in: Nita 2009].

Next trend postulates that IT no longer can be viewed as just a technology supplier. It must be seen to add value to the organization and provide strategic capability. Thus, the costs to provide services must be understood and become part of the decision-making process. IT performance management methods allow IT to focus on its user-customers and services. They also enable IT to become service oriented, aligning itself with the organization to provide customer-driven solutions to user problems and opportunities. For example, IT may better understand why a department requires business intelligence software to improve its analysis.

The last trend requires management accountants to act as “change agents” to motivate mid-level managers and other employees to demonstrate to their coworkers that progressive management accounting and EPM methodologies make sense to implement. There are personal rewards and satisfaction in explaining the importance of overcoming social, behavioral, and cultural barriers so organizations can take next steps.

Based on own experience as well as taking into consideration empirical research it is possible to indicate six important development trends in the area of management accounting in the near future.

1. The concepts and methods in the field of strategic management accounting should be further developed. Such proposals should be intended to assist decision-making process oriented towards achieving the fundamental, strategic objectives of enterprises. This approach triggers off searching for the new methods to strengthen the role of accounting in the process of strategic management (strategic planning, strategy execution and strategy control).

2. Models of comprehensive cost accounting and cost management systems instead of separate costing systems should be designed and implemented. New directions should focus not only on methodological aspects, but also look for areas where particular methods fulfill managerial expectations. This trend is about the examination of the possible application of the various methods and selected instruments in different types of companies and various functional areas.

3. Integration of different methods of management accounting. The selection of instruments and models currently in use is very broad, thus opening up the possibility of logical matching elements from different methods and consequently creating new concepts would be very favorable from the point of view of managers.

4. Developing managerial accounting methods taking into account the requirements and impacts from the organizational structures and complex information needs taking into account various levels in the organizational hierarchy. Methods on the one hand should address IT systems, on the other hand the impact of the organizational structure on the design of management accounting systems.

5. Management accounting will be further oriented towards the management of intellectual capital, which is now a major challenge for management accounting specialists perceived as internal business consultants.

6. Development of integrated tailor-made models and concepts of performance measurement and performance management. Those models need to take into account contingent factors affecting business management with a focus on all functions conducted by managers, including planning, controlling, organization, and motivation.

Conclusions

Summing up the considerations in the paper, it is possible to conclude that management accounting at the beginning of the twenty-first century was strongly focused on cost management, as well as generating reliable and relevant cost information to support decision-making processes. However, respondents emphasized cost information distortion resulting from imperfect methods of accounting for indirect production costs, existence of shared services and product variety. In the field of information technologies there was domination of solutions developed internally in the organization and specialists began to emphasize the need to use more advanced information systems. Management accounting was dominated by traditional methods, such as absorption accounting and operating budgeting.

Changes that can be identified in the period 2003-2012 referred mainly to increasing pressure on cost reduction and customer segmentation as important factors influencing accuracy of accounting procedures and cost calculation. The importance of generating more accurate and meaningful cost information was further emphasized. In addition, more attention was paid to internal management reporting using integrated ERP systems. According to the respondents the role and importance of the so-called modern cost accounting systems was reduced and in turn willingness to seek new tools to support performance measurement and management.

Taking into account this background, many authors try to formulate predictions about future directions of management accounting. The most important identified trends include the growing importance of multi-dimensional analysis across different objects, such as products, customers, and distribution channels. In addition, high importance attributed to management accounting in supporting performance management and strategy execution is still highlighted. Specialists call for improvement of planning and budgeting methods, using sophisticated statistical and analytical approaches, the integration of management accounting methods and huge importance of information technology (business intelligence, big data etc.). It is also worth mentioning that management accounting professionals should go away from their desks, improve their communication skills to become business partners not only for managers making decisions, but also for all members of the organization.

References

2003 Survey of Management Accounting, Ernst&Young and Institute of Management Accountants, 2003, www.imanet.org [20.10.2015].

Burns J., Yazdifar H., 2001, Tricks or Treats?, *Financial Management*, March.

Clinton B.D., White L.R., 2012a, The Role of Management Accountant: 2003-2012, *Management Accounting Quarterly*, Vol. 14, No. 1.
Clinton B.D., White L.R., 2012b, Roles and Practices in Management Accounting: 2003-2012, *Strategic Finance*, November.
Cokins G., 2013, Top 7 Trends in Management Accounting, *Strategic Finance*, Vol. 95(12).
Cokins G., 2014, Top 7 Trends in Management Accounting. Part 2, *Strategic Finance*, Vol. 96(1).
Evans H., Ashworth G., Gooch J., Davies R., 1996, Who Needs Performance Management?, *Management Accounting*, Vol. 74, Vol. 11.
Fraser M., 2012, Developments in management accounting, *Chartered Accountants Journal*, Vol. 91, No. 8.
Garg A., Ghosh D., Hudick J., Nowacki C., 2003, Roles and Practices in Management Accounting Today, *Strategic Finance*, Vol. 85, No. 1.
Nita B., 2009, *Rola rachunkowości zarządczej we wspomaganiu zarządzania dokonaniami przedsiębiorstwa*, Wrocław: Wyd. UE.

Stan i kierunki rozwoju rachunkowości zarządczej w globalnym otoczeniu

Streszczenie. *Celem opracowania jest przedstawienie stanu i perspektyw rozwoju rachunkowości zarządczej w XXI w. w globalnym otoczeniu na podstawie badań prowadzonych przez innych autorów w ramach projektów badawczych realizowanych przez Ernst and Young, brytyjski instytut CIMA oraz amerykański instytut IMA.*

W pierwszej część artykułu zaprezentowano wyniki ustaleń dotyczących stanu rachunkowości zarządczej na przełomie XX i XXI w., a następnie przedstawiono wyniki badań prowadzonych na początku minionej dekady. Następnie przeanalizowano zmiany zachodzące w praktyce rachunkowości i w postrzeganiu roli pełnionej przez specjalistów z tego obszaru odwołując się do badań z 2012 r. W ostatniej części syntetycznie omówiono trendy rozwojowe rachunkowości zarządczej postulowane przez różnych badaczy oraz wskazano własne przewidywania dotyczące rozwoju tej dyscypliny.

Słowa kluczowe: *rachunkowość zarządcza, stan obecny, trendy rozwojowe*

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Behavioral accounting research – accounting research in the behavioral paradigm? True or false?

Abstract. *This paper deals with the problem of the research paradigm in behavioral accounting. It focuses on the question of whether the behavior paradigm is applied in the science called "behavioral accounting." Considerations presented in the paper are of theoretical character. The author focuses on a literature study, based on historical and contemporary papers. The considerations are interdisciplinary, combining fields such as philosophy (with special emphasis on the philosophy of science), psychology, behaviorism, accounting (with special emphasis on behavioral accounting) and finance.*

Keywords: *paradigm, behaviorism, behavioral accounting*

Introduction

Development of behavioral accounting is one of the most significant trends in contemporary accounting research and theory. As its name says, it focuses more on the behavior on accountants and users of the accounting information, than on the other accounting aspects, such as legal determinants or calculations.

The behavioral research in accounting can be often mistaken with behavioral paradigm called behaviorism which functions in science and humanities and which is rooted in philosophy (especially philosophy of science) and psychology.

The research problem of this paper focuses on the relations between behavioral and behavioristic paradigm in accounting. The aim of the considerations is to solve main question which is:

– What is the relation between behavioral accounting and behavioristic paradigm in accounting?

The supportive questions are:

– What is the general nature of paradigms in science?
– What is understood by "behavioral accounting" term?
– What are the main assumptions of behavioristic paradigm?
– Can behavioristic paradigm be applied to the behavioral accounting research?

The main thesis states that behavioral accounting research cannot be defined nor understood as accounting research made in behavioristic paradigm. The research covers the critical analysis of publications on accounting (particularly: behavioral research in accounting), behaviorism, philosophy (especially philosophy of science and behavioristic philosophy), psychology (including its history and behavioristic psychology).

The specific goal of the paper is to explore, present and explain the differences between the scientific behaviorism and scientific approach used in behavioral accounting research. The more general goal is to give attention to the necessity of precision and clearness in the scientific discourse.

1. Essence of scientific paradigms and behaviorism as a scientific paradigm

The discourse about the paradigms should be doubtlessly started by explanation of the paradigms themselves. K. Khun observes that, "historical investigation of a given specialty at a given time discloses a set of recurrent and quasistandard illustrations of various theories in their conceptual, observational, and instrumental applications. These are the community's paradigms, revealed in its textbooks, lectures, and laboratory exercises. […] Anyone who has attempted to describe or analyze the evolution of a particular scientific tradition will necessarily have sought accepted principles and rules of this sort" [Kuhn 1970: 43]. "Normal science can be determined in part by the direct inspection of paradigms, a process that is often aided by but does not depend upon the formulation of rules and assumptions. Indeed, the existence of a paradigm need not even imply that any full set of rules exists [Kuhn 1970: 44]. J. Jalladeau states that the paradigm is "formed of a body of theories, techniques, and metaphysical sets accepted by

Table 1. Phases of Behavioral Revolution

Phase of behaviorism		Person	Essence
First phase of "behavioral revolution"	Classical "stimuli-responses" behaviorism	John B. Watson (1878-1958)	Introduced term "behaviorism"
Second phase of "behavioral revolution"	Meditational "stimuli-organismic entity-responses" behaviorism	Edward C. Tolman (1886-1959) Clark T. Hull (1884-1952) Kenneth W. Spence (1907-1967)	Unobserved "organismic" terms were inserted between "stimuli" and "responses" of classical behaviorism

S o u r c e: author's own elaboration based on Moore 2010a: 143.

a group of scientists. The dominant paradigm is the conceptual frame governing every discourse […] The paradigm defines the type of problems to resolve and vouchsafes the existence and nature of a solution recognized by group" [Jalladeau 1978: 589].

Behaviorism is one of the most significant paradigms in history of sciences and in contemporary science as well. Its formal beginnings can be associated with the works of B.J. Watson who used the term "behaviorism" for the first time. His works started the "behavioral revolution" in science. The stages of the revolution are presented in Table 1.

In his work B.J. Watson stresses that from the behaviorists point of view psychology "is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. […] The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. The behavior of man, with all of its refinement and complexity, forms only a part of the behaviorist's total scheme of investigation" [Watson 1913: 158, after Ahrzem 2004: 6].

J. Moore explains, behaviorism "has never been a unitary psychological perspective and proponents differ significantly in terms of methodology and theoretical outlook" [Moore 2010a: 137-150; Moore 2010b: 699-714, after Abramson 2013: 57]. Nevertheless, all types of behaviorism have a lot in common. "For behavior analysts, behaviorism is the philosophy of science underlying the science of behavior. It takes behavior as a subject matter in its own right, and applies the principles and methods of other natural sciences to develop theories and explanations" [Moore 2011: 460]. J. Freiberg stresses that behaviorists "believe that knowledge does not depend upon introspection, and they completely reject discussion about internal mental states. Rather, behaviorism's focus is on the external observation of lawful relations between and among outwardly observable stimuli and the responses that follow. What constitutes valid knowledge is publically observable, and as such, behaviorists believe that the concept of mental states can be discarded" [Freiberg (ed.) 1999, after Boghossian 2006: 1]. P. Grey defines behaviorism as "a school of psychological thought that holds that the proper subject of study is observable behavior, not the mind, and that behavior should be understood in terms of its relationship to observable events in the environment rather than in terms of hypothetical events within the individual" [Gray 2007: G-2]. According to J.F. Rychlak, different types of behaviorism have at least two things in common: "the claim to scientific accuracy and a definitive image of human nature thought to assume an exclusively naturalistic worldview" and view in which "the forces of nature are considered to exclusively govern all animals, including the behavior of higher animals, humans" [Rychlak 1981, after Slife 2012: 801].

2. Behavioral accounting research versus behavioristic paradigm

S.W. Becker "pointed out a […] set of distinctions between behavioral accounting research and other forms of accounting research. Behavioral accounting research applies the theories and methodologies from the behavioral sciences to examine the interface between accounting information and processes and human (including organizational) behavior" [Becker 1967: 225-228, after Birnberg, Schields 1989: 24]. T.R. Hofsted, J.C. Kinard defined behavioral accounting research as "the study of the behavior of accountants or the behavior of non-accountants or the behavior of non-accountants as they are influenced by accounting functions and reports" [Hofsted, Kinard 1970: 43, after Lord 1989: 124]. Basing on given definitions and considerations behavioral accounting research can be described shortly as the "research on accounting – related behavior."

J.C. Birnberg, J.F. Shields identified five schools within behavioral accounting research, which are:

- managerial control,
- accounting information processing,
- accounting information system design,
- auditing process research,
- organizational sociology [Birnberg, Shields 1989: 23-74].

Table 2 presents the essence and main research fields of those schools.

Table 2. Behavioral accounting research schools

Behavioral Accounting Research School	Essence	Research fields
Managerial control	Discusses in broad sense planning and control.	effects of participation on budget levels, participation, management styles, budgeting, contingency, relationship between leadership styles and use of accounting reports, effects of individual differences on individual responses to the control system, linkage between the managerial control system and the strategic planning, role of accounting in resolving the problems of managers caused by environmental uncertainty, influence of reporting rules on behavior
Accounting information processing	Constitutes a natural extension of dominant themes in financial accounting research.	the role of accounting in disclosure of financial information to users, impact of alternative accounting treatments on the decision making of users, human information processing, reliance on inexperienced subjects, financial user behavior, effects varying the inputs, entire decision making process
Accounting information system design	Explores behavioral issues in the overall design of the firm's information system, concern with ability to generalize the findings to all aspects of the firm information systems activities.	needs of accounting information system design of consideration of the cognitive styles of users, relating system and decision style of user, role of the structure and design of accounting reports in the user's ability to extract the appropriate information, the role the accounting information system plays in development of the organization's structure and adaptivity, effect of the information load on the quality of the decisions
Auditing process research	Includes behavioral accounting research on internal and external audits.	experience as basis for auditor's expert judgment, decision making of auditors, identifying auditor's expertise and improving it
Organizational sociology	Focuses on practice of accounting in organizations.	influence of the environment on an organization accounting system, forces that cause accounting information system to change over time, role of the accounting in the political realm of an organization, usage of accounting systems by individuals to make sense of their organizational experience, alternative functions for accounting, individual function of accounting, socio-political function of accounting, organizational function of accounting

S o u r c e: author's own elaboration based on Birnberg, Shields 1989: 23-74.

Table 3. Behavioral accounting research literature types

Behavioral Accounting Research Literature	Content	Examples
Original empirical studies in accounting	Raw materials of research programs	Stedry A., *Budget Control and Cost Behavior* Stedry A., *Budgeting and Employee Behavior: A Reply* Churchill N.C., *The Behavioral Effects of Audits. An Experimental Study*
Review of the literature of underlying disciplines	Reflective attempts to generalize concepts from non-accounting behavioral sciences	Becker S., Green D., *Budgeting and Emploee Bevahior* Becker S., Green D., *Budgeting and Employee Behavior: A Rejoinder to a Reply* Becker S.W., *Discussion on the Effect of Frequency of Feedback and Attitude and Performance* Caplan E.H., *Behavioral Assumptions of Management Accounting*
Review of behavioral accounting articles	Articles about articles attempting to integrate and relate the findings of the existing studies	Birnberg J., Nath R., *Implications of Behavioral Science for Management Accounting*
Theoretical works	Attempts to establish a theoretical framework for behavior related to accounting	Ijiri Y., Jaedicke R.K., Knight K.E., *The Effects of Accounting Alternatives on Management Decisions* Burns W.J., *Accounting Information and Decision Making: Some Behavioral Hypotheses*
Methodological articles	Articles attempted to educate or exhort concerning "do's" and "don't's" of particular methods	Birnberg J., Nath R., *Laboratory Experimentation in Accounting* Jensen R.E., *An Experimental Design for Study of Effects of Accounting Variations in Decision Making*

S o u r c e: author's own elaboration based on: Stedry 1960; Becker, Green 1962: 392-402; Churchill 1962; Stedry 1964; Caplan 1966: 496-509; Jensen 1966: 224-238; Becker 1967: 225-228; ; Birnberg, Nath 1967: 468-479; Birnberg, Nath 1968: 38-46; Burns 1968: 469-481; Hofsted, Kinard 1970: 38-54; Ijiri et al. 1966: 186-199.

It should be stressed that most of the researches made according to behavioral accounting schools, presented in table, is not conducted in accordance with behavioristic paradigm. The most important reasons are:

– Mental processing of accounting information is unnoticeable by outside observer.

– Mental processing of data and decision making are connected with internal mental states.

– Sociology of organizations is connected with mental perceptions of roles, positions and politics.

– Auditor's behavior can depend on cognitive style and biases.

– Information system design depends on cognitive styles of users.

All those facts are making usage of behavioristic paradigm impossible.

T.R. Hofsted and J.C. Kinard classified behavioral accounting literature and enumerated five types of publications:

– original empirical studies in accounting,
– review of the literature of underlying disciplines,
– review of behavioral accounting articles,
– theoretical works,
– methodological articles [Hofsted, Kinard 1970: 38-54].

The classification including the content of papers and examples of papers in presented in Table 3.

Such classification shows that in some class of behavioral accounting literature application of behavioristic view is possible. Behaviorism can be used in methodological papers if the behavioristic methods (like: laboratory experimentation and outside observation) are proposed. It is also possible in theoretical articles if they base on behavioristic theories. Moreover, behavioral accounting articles which include the review of literature, can be called "behavioristic", if the literature, which is analyzed, focuses on the publications of behaviorists.

Conclusion

The conclusion of the considerations which were presented in the paper is: behavioral accounting research is not equal to the accounting research in behavioristic paradigm. Behavioral accounting research cannot be defined nor understood as accounting research made in behavioristic paradigm. Nevertheless, behavioristic paradigm was applied to some of the researches in behavioral accounting. Those researches were done according to stimuli-responses model. The behavioristic paradigm can be therefore applied in behavioral accounting research but terms "behavioral accounting research" and "behavioristic research in accounting" cannot be treated as equal.

There are several directions of potential future studies. Most important of them should focus on fields such as:

– role and application of behavioristic paradigm in social and economic sciences, its evolution and its potential,
– role and future of behavioral accounting.

In particular, author intends to explore the following matters:

– relation between behavioral economics, behavioral finance and behavioral accounting,

– analysis of methods used in behavioral accounting research,

– analysis of behavioristic methods usage in accounting.

Recapitulating, it should be emphasized that behavioral accounting still has a great research potential but nevertheless it definitely needs clear determination of its terminology and limits as well. This clarification will not only make behavioral accounting research more reliable but also more popular between accounting practitioners and theorists.

References

Abramson C.I., 2013, Problems of Teaching the Behaviorist Perspective in the Cognitive Revolution, *Behavioral Sciences*, Vol. 3: 55-71.

Becker S., Green D., 1962, Budgeting and Employee Behavior, *Journal of Business*, October: 392--402.

Becker S.W., 1967, *Discussion on the Effect of Frequency of Feedback and Attitude and Performance*, Empirical Research in Accounting: Selected Studies, 225-228.

Freiberg J. (ed.), 1999, *Beyond Behaviorism: Changing the Classroom Management Paradigm*, Boston: Allyn&Bacon.

Birnberg J., Nath R., 1967, Implications of Behavioral Science for Management Accounting, *The Accounting Review*, July: 468-479.

Birnberg J., Nath R., 1968, Laboratory Experimentation in Accounting, *The Accounting Review*, January: 38-46.

Birnberg J.G., Shields J.F., 1989, Three Decades of Behavioral Accounting Research: A Search for Order, *Behavioral Research in Accounting*, Vol. 1: 23-74.

Boghossian P., 2006, Behaviorism, Constructivism, and Socratic Pedagogy, *Educational Philosophy and Theory*, Vol. 38, No. 6: 713-722.

Burns W.J., 1968, Accounting Information and Decision Making: Some Behavioral Hypotheses, *The Accounting Review*, July: 469-481.

Caplan E.H., 1966, Behavioral Assumptions of Management Accounting, *The Accounting Review*, July: 496-509.

Churchill N.C., 1962, *The Behavioral Effects of Audits. An Experimental Study*, unpublished ph. Thesis, University of Michigan, School of Business Administration.

Gray P., 2007, *Psychology*, New York: Worth Publishers.

Harzem P., 2004, Behaviorism for New Psychology: What Was Wrong With Behaviorism and What Is Wrong With It Now, *Behavior And Philosophy*, Vol. 32: 5-12.

Hofsted T.R., Kinard J.C., 1970, A Strategy for Behavioral Accounting Research, *The Accounting Review*, January: 38-54.

Ijiri Y., Jaedicke R.K., Knight K.E., 1966, The Effects of Accounting Alternatives on Management Decisions, in: Y. Ijiri, O. Nielson (eds.), *Research in Accounting Measurement*, Sarasota: American Accounting Association, 186-199.

Jalladeau J., 1978, Research Program Versus Paradigm in the Development of Economics, *Journal of Economic Issues*, Vol. XII, No. 3: 583-608.

Jensen R.E., 1966, An Experimental Design for Study of Effects of Accounting Variations in Decision Making, *Journal of Accounting Research*, autumn: 224-238.
Kuhn K.S., 1970, *Structure of Scientific Revolutions*, 2nd ed., enlarged, The University of Chicago.
Lord A.T., 1989, The Development of Behavioral Thought in Accounting, 1952-1981, *Behavioral Research in Accounting*, Vol. 1: 124-149.
Moore J., 2010a, Philosophy of Science, with Special Consideration Given to Behaviorism as the Philosophy of The Science of Behavior, *The Psychological Record*, Vol. 60: 137-150.
Moore J., 2010b, What do Mental Terms Mean?, *The Psychological Record*, Vol. 60: 699-714.
More J., 2011, Behaviorism, *The Psychological Record*, Vol. 61: 449-464.
Rychlak J.F., 1981, *Personality and Psychotherapy*, 2nd ed., New York: Houghton-Mifflin.
Slife B.D., 2012, Religious Implications of Western Personality Theory, *Pastoral Psychology*, Vol. 61: 797-808.
Stedry A., 1960, *Budget Control and Cost Behavior*, Prentice-Hall.
Stedry A., 1964, Budgeting and Employee Behavior: A Reply, *Journal of Business*, April: 195-202.
Watson B.J., 1913, Psychology as the Behaviorist Views It, *Psychological Review*, Vol. 20: 158-177.

Badania z zakresu rachunkowości behawioralnej – badania nad rachunkowością według paradygmatu behawiorystycznego? Prawda czy fałsz?

Streszczenie. *Artykuł dotyczy problemu paradygmatu badawczego w rachunkowości behawioralnej. Koncentruje się na kwestii, czy paradygmat behawiorystyczny jest stosowany w nauce zwanej „rachunkowością behawioralną”. Rozważania zawarte w artykule mają charakter teoretyczny. Autorka koncentruje się na studiach literaturowych, w oparciu o artykuły i książki historyczne oraz współczesne. Rozważania mają charakter interdyscyplinarny i łączą dziedziny takie jak filozofia (z akcentem na filozofię nauki), psychologia, behawioryzm, rachunkowość (ze szczególnym akcentem na rachunkowość behawioralną) i finanse.*

Słowa kluczowe: *paradygmat, behawioryzm, rachunkowość behawioralna*

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The role of accounting in measurement of efficiency in local government units

Abstract. *The following article is aimed to analyze and to extract the most important factors of measuring the efficiency of the activity of local government units. Limited budgets for the activities of local government units should be spent in the most efficient way. The author proposes the implementation of a performance budgeting procedure, which is currently not mandatory in local government units. Constructing such a procedure is helpful in gaining a new look at a unit's policy. The planning process is the same at every level and should include: diagnosis of the problem, an action plan with a timetable, a plan of financial resources for their implementation, and a monitoring system for the implementation of the plan. Improper selection of indicators and targets of individual actions taken under public tasks poses significant threats in the measurement of efficiency. From among these threats, the most substantial one is unreliable indicators which hide the imperfections of unit management.*

Keywords: *performance-based budgeting, effectiveness, management control, new public management*

Introduction

The provision of public services is an essential task of local government unit. These services are almost always non-profit; however, lack of income does not mean the possibility of the resignation of measuring the effectiveness and the valuation effects of these activities. On the contrary – the inability of achieving profits poses even greater challenge to make its activity even more effective than in the case of commercial entities. This thesis mainly refers to those who base their activity on external funds – of course, not all non-profit entities are obliged to effective spending. Business practice has developed specialized entities whose main task is to implement the statutory objectives (e.g. taking care of a positive corporate image), regardless of the cost. In the case of such entities, efficiency is measured in a different non-financial method. Such a practice is not acceptable, and even prohibited in the case of entities whose activities are based on funds provided by the general public, often with significant social opposition of its representatives.

The local government units operate in accordance with established long-term business plan based on the expenditures and revenues. This plan is closely linked to the vision of development adopted by the management unit over the medium and long term. In the case of entities operating in the public finance this plans are linked to the strategy of state governance. Under conditions of limited resources allocated to the core activities the key issue is the most effective spending of funds entrusted. In this case the problem poses the measurement of efficiency the money spent on public activity. It is not possible to use the standard indicators of financial analysis, because the revenue generated from the project are the basis for estimating efficiency. Most statutory activities of local government units is related to their mission, which is to satisfy basic social needs, and these are rarely associated with the achievement of revenue.

The obligation to measure the effectiveness of local government units based on the Public Finance Act. The 68th article of the act requires the executive of the local government units perform management control, which is expressed in the following areas of activity of these units:[1]

1) compliance of the law and the internal procedures,
2) efficient and effective operation,
3) the reliability of financial reports,
4) resource protection,
5) respect and promote the principles of ethical conduct,
6) efficiency and effectiveness of the flow of information,
7) risk management.

The effectiveness of the public expenditure is the issue which is frequently raised in the theory of public finance especially in terms of the expected growth in demand for public goods and services, which is largely resulting from unfavorable global trends. In the face of strong pressure on spending and with the

[1] Public Finance Act, Ustawa z dnia 30 czerwca 2005 r. o finansach publicznych, Dz.U. nr 249, poz. 2104 z późn. zm.

limited amount of public funds, it is necessary to analyse efficiency and savings in spending. Such activities will allow to use public funds in a more efficient manner. Moreover, a new trend in the management of public finance, occurs and it is placing emphasis on working out a better definition of the public policy objectives detailed scheduling of public tasks, monitoring of progress in their implementation and controlling the objectives achievements.

The aim of this article is to underline the most important factors supporting the measurement of the efficiency of the local government units. The unit management is closely related to the presentation of accurate and reliable information on the efficiency of the public expenditures. The funds, however, performs in units in insufficient amount. In the face of substantial decentralization of the public duties which leads to the increase in scope of tasks and consequently in public funds which are in competence of the local government, the issue of the public spending efficiency of local government units becomes a crucial matter as well as the recognition of the factors which affect this efficiency.

1. The effectiveness of the public spending in Poland

The efficiency and the effectiveness of public expenditure are the attributes of a modern state. The use of the appropriate instruments to measure them and the resulting conclusions affect the quality of the state institutions and the local government. According to the ideology of New Public Management (NPM) it is necessary to develop and implement clearly defined standards and measures of the activities and the tasks. The control tools should also be applied, in particular with regard to the standards and measures of the activities and the tasks.

Making the measurement and the valuation of the results provide the basis for evaluating the effects, which can be linked to the effectiveness and evaluation of the efficiency of the activities undertaken [Filipiak 2011: 225]. The new public management promotes the idea of the so-called 3E, which is an assessment of economy, efficiency and effectiveness. The new public management approach calls for the assessment of the following factors [Lubińska (ed.) 2007: 27]:

- what tasks the units perform,
- what expenses are allocated on individual tasks in a given financial year,
- what goals they want to achieve,
- the effects (results) of the intended targets,
- whether the intended targets have been achieved.

The efficiency in relation to the execution of public and local government tasks is understood as “a set of economic relationships in the form of cash flows between the participants engaged in the tasks assigned by law and depends largely on the accuracy and correctness of the selection and the construction of the monetary instruments through which the division processes and the exchange of produced goods and services are carried out" [Sochacka-Krysiak 2009: 192]. Postuła and Perczyński indicate that the public spending are the primary factor in the increase in efficiency [Postuła, Perczyński (eds.) 2010: 20]. Thus, the efficiency can be understood as the formation of the public expenditure, including local governments, which allows for the greatest social utility of the allocated public funds. An important factor in increasing efficiency is also the decentralization. Patrzałek states that "the processes of collecting and distributing the public funds are more effective, if the trustees of the public funds and the institutions responsible for the provision of the public and social goods are closer to the local and regional communities" [Patrzałek 2012: 60].

The precise determination of the expenditure and the effects is a prerequisite for measuring the effectiveness, which is not always possible in the sector of public finances. This is due to the fact that the tasks of the public sector, including local government units, may be qualitative in their nature and difficult to quantify, as not only the effect is analyzed, but also the scope of the impact on the environment and the external benefits of the public expenditure are measured [Stiglitz 2004: 330]. Furthermore, the effects of the certain public expenditures occur after many years, which results in the lack of precise timing of the expenditure and the effects.

The effectiveness of the public expenditure should be measured at two levels – macro-and microeconomic. The macroeconomic analysis of the public expenditure is looking for the dependencies that exist between the amount and the structure of expenditure and fundamental macroeconomic values. There are various indicators such as the economic growth (local, regional or nationwide), the inflation rate and the unemployment rate that provide the information about the effects of the public expenditure. At the local government level the analysis can be performed only to a limited extent and for the general aggregates. The analysis can also be applied to those tasks that are implemented in the region or in the cooperation with other local governments [Tomkiewicz 2003: 38].

The microeconomic analysis of the efficiency of public expenditure is the study of how the public funds are spent by individual administrators (the subject analysis). The object analysis examines the amount of the public expenditure and its structure. Combining the results of the object and the subject analysis allows us to determine whether the transferred funds were effectively used by a particular officer or agency of the public sector, including local government units. In measuring the efficiency at the micro-and macro-economic level both the quantitative and the qualitative approach should be applied. This follows from the fact that the state and local governments units in particular are focused on the citizen and the society, its needs, development, social relations, and therefore the use of the quantitative measure only would be insufficient.

2. Efficiency measurement

In the amendment to the Public Finance Act the legislature upheld the principle of the effectiveness of the public spending of the money resources. It shows that the public expenditure should be made in a purposeful and economical way, with the principles of the best results of the data inputs, and the optimal selection of the methods and the means of achieving these goals, and also in the amount and under the terms of previously contracted commitments (Art. 44 The Public Finance Act). The legislature, seeing the need for measuring the effectiveness, indicate in the Public Finance Act the following instruments conducive to its growth and the measurement:

– performance-based budgeting,

– long-term financial planning (especially multi-state financial plan, long-term financial forecast for local government units),

– management control.

The indicated instruments are based on the measure and the assessment of the degree of realization of the set goals and the implementation of the programs, tasks, sub-tasks and activities. The implementation of a performance-based budget is mandatory in the government sector, but optional in the local government sector.

The amendment to the Public Finance Act and the regulations imposed on the local government units the preparation of the long-term financial forecast, according to art. 226 of this Act. The long-term financial forecast should be realistic and for each year covered by the forecast the elements listed below should be determined [Oleksyk 2012: 379-380]:

– the current revenues and the current expenditure of the budget of local government units, including the debt service, the guarantees and the sureties,

– property income, including the income from the sale of assets, and the capital expenditure of the budget of a local government unit,

– the result of the budget of a local government unit,

– investing the surplus or financing the deficit,

– revenues and expenditures of the budget of a local government unit, including the debt incurred and planned,

– the amount of the debt of a local government unit.

The challenge in the long-term financial forecasting is the appropriate estimation of the amount of the income of the unit. It is a very difficult part of the financial planning, since in this case one needs to make a complicated econometric statistical analysis that will allow for a reliable estimation of the future cash flows increasing the potential of the unit. The most important elements of such a model are:

– the growth affected by the revenues from grants and subsidies,

– the increase in the economic potential,

– the growth of wealth of the inhabitants of the area as a result of ongoing investments

– socio-demographic factors (population growth in the area due to e.g. internal migration).

These factors are specific to the local government units and should be extended to the standard elements of financial modeling. This forecast should cover the period of the financial year and the next three years following this period. The primary objective of the long-term financial forecast is to prepare reliable information on the basics of financing individual business segments in the future. The data contained in the long-term financial forecast may be the key information on the prospects of the development of the unit. It is important to analyze the debt of the unit, as exceeding the permissible thresholds may be the key problem with the current management of the unit, which often results in the failure of some actions. The information contained in the forecast is therefore the basis for making investment activities on the basis of a long-term investment plan. Currently, there are only some general guidelines for the preparation of this plan, despite the fact that the preparation of a long-term investment plan is a very difficult and multifaceted task.

3. Problems of implementation

The most important problems related to the performance-based budget in local governments units include [Korolewska, Marchewka-Bartkowiak 2013: 170-171]:

– difficulties in formulating measurable objectives of the budgetary tasks,

– difficulties in defining performance measures and indicators of objectives of the budgetary tasks and specifying the expected value,

– the lack of adequate and reliable information systems for planning and monitoring the implementation of a performance-based budget (the need to integrate large amounts of data),

– the existing accounting model in local government units and too general provisions in the Act on accounting are not conducive to the records and the settlement of costs/expenditure in the system of tasks and other possible cost objects (services, products, programs and strategic objectives),

– low understanding and use of management functions of a performance-based budget,

– the problem of recognizing particular areas for funding the tasks and projects (especially in the cases where the department/unit has a very diverse range of activities),

– the conviction of administrators to the necessity of implementing a performance-based budget,

– the resistance from the workers,

– the need to make changes by all employees of the City and in all its subordinate units,

– changes in the organizational structure require the changes in the scope of tasks, which hampers comparing them over a period of time,

– the lack of organizational regulations allowing the assignment of particular tasks related creating a performance-based budget to qualified employees.

Generally, the leader of the measure is the person responsible for monitoring the individual/particular measures and the identification of opportunities and risks in achieving the planned path values for each measure assigned to them. In contrast, the owner of the measure is the person responsible for the activities that affect the value of the meter. In the city council the leaders of the measures should be directors of organizational units or persons responsible for the selected functional areas of the city council. In contrast, the owner of the measures should be a person appointed by the mayor as the coordinator of controlling tasks, mostly an employee of a public finance department. The basic tasks of the leaders of measures, taking into account the functioning of the city council, should be

– monthly monitoring of the measure,

– informing the owner of the measure if the meter reaches critical values and preparing a corrective action plan,

– preparing the information on the evolution of the measure,

– participating in quarterly and annual reviews,

– preparing proposals for changes in indicators, targets and specific objectives,

– initiating the actions that affect the value of the measure.

Monthly inspections should be carried out by the leaders of the measures. The leaders should evaluate the achieved value of the measure in relation to the plan. In the event of a critical assessment of the level of the measure the leader should develop a corrective action plan and initiate a corrective action. The information about the action taken in relation to the measure should also be forwarded to the owner of the measure. The owner of the measure should be an independent person, reporting only to the President of the city. Any dependence on the leader of the measure (the director of the organizational office of the city council) may cause disturbances of the process associated with setting the measures, preparing the calculation formulas of the measure, providing the data needed for the calculation or with setting a target value of the measure.

Another important issue relates to the resistance of the office workers. This matter always comes up when implementing new concepts in different types of entities, whether private or public, and it is very natural. It seems that the appropriate involvement of employees from different departments and units of the city council, proper communication and reporting on the implementation of the new solution should significantly reduce the resistance of the workers. The pilot implementation of a performance-based budget, e.g. only in terms of several disciplines is also used to help the employees become familiar with the development of such a budget. Positive effects can be quickly noticed by the workers and change their attitude to this new model of budgeting. It is highly recommended because the involvement of city office workers in the development of a performance-based budget and their understanding of the assigned responsibility for the execution of individual tasks contribute to the achievement of the desired effects.

Conclusions

A performance-based budget in local government units may be constructed on a voluntary basis, parallel to the existing budget in the traditional system. According to the provisions of the Public Finance Act, the powers to adopt a resolution on the drafting of the budget resolution has been granted to a constitutive organ of a local government unit. A constitutive organ may establish the budgetary scope of performance-based budget items (e.g. tasks, subtasks, the number and structure of the specific measures and targets). The records of the performance-based budget structure are either in the content of the adopted city budget or take the form of an accompanying document of the local governments unit budget.

In most cases, the implementation of a performance-based budget is the desire to increase the efficiency of the financial management of local government units. Moreover, the amendment to the Public Finance Act in 2009, introducing new instruments such as long-term financial forecast and management control, may induce local government units to implement a performance-based budget.

Appreciating the voluntary effort of the local government units implementing a performance-based budget, one may note the lack of uniform regulations, which leads to a lack of consistency between the different tasks and measures and makes the comparisons between similar cities quite impossible. The information presented in the system of task by each local government should have a significantly greater similarity, so that one can make comparative analyses, e.g. in terms of efficiency of expenditure for the same tasks by individual units.

The measurement of economic factors through different types of indicators is nowadays the standard in the management of many areas of modern economic life.

The most common purpose of manipulating on indicators is the desire to achieve higher profit, or payment for goods or services. In the case of local government units there is a possibility of manipulation of another type. The most common reason for these manipulation are financial security requirements contained in the legal regulations (mainly regarding the requirements for the maximum level of debt etc.).

Setting objectives and measures in the performance – based budgeting procedure is extremely difficult. It is a process in which excessive flexibility for lower-level units in the selection of indicators may be associated with the risk of manipulating of the indicators. As a consequence it may also lead to pathological practices that could be called "creative performance – based budgeting." Creativity in this case should be seen as negative practice, connected with the selection of measures which are "convenient" for the unit management. The solution, which will significantly reduce the possibility of manipulation is to introduce regulation, which clearly define the selection of indicators for each task. The choice of measures should be defined in the Public Finance Act so that any attempted manipulation was significantly difficult to hide due to the obligation to obey mandatory regulations.

Measures designated in the performance – based budgeting process are very useful in measuring the effectiveness of local government units. These units are obliged to identify business development plans for at least one year. Such plan should include minimum and maximum values of predefined indicators. In case of product indicators it may be desirable to exceed the minimum ratio(e.g. the more miles of roads built is the better). However, a positive trend with cost indicators is the greatest lower deflection from the maximum unit cost index.

The implementation of a performance – based budgeting is a different approach to planning and determining the objectives of local government units. The planning principles so far were based mainly on the execution of expenditure in previous periods without the possibility of assessing the relevance of these expenditures. The experience of developed countries proves that accounting records and reporting on their own are not able to change or improve anything. One should not forget that the essence of accounting and reporting is to provide reliable information necessary for current decisions making – operational as well as long-term – strategic. Thus, the correct use of relevant information is the most important in making changes in public expenditures. New kind of reports in performance – based budgeting a (especially information concerning the indicators) are helpful in obtaining information about effectiveness of elementary operations. These results are the basis of taking preventive corrective measures. Unfortunately, these measures when used in improper management environment may also become means for hiding the actual unit's performance which is based on founds from stakeholders waiting for reliable information.

References

Act on Accounting, Ustawa z dnia 29 września 1994 r. o rachunkowości, Dz.U. nr 121 poz. 591, z późn. zm.

Andrews M., 2005, Performance-based budgeting reform. Progress, problems and pointers, in: A. Shah (ed.), *Fiscal Management: Public sector governance and accountability series*, Washington: World Bank.

Filipiak B., 2011, *Efektywność w zarządzaniu finansami samorządowymi. Skutek kryzysu czy obiektywna konieczność?*, Kraków: Polskie Towarzystwo Ekonomiczne.

Korolewska M., Marchewka-Bartkowiak K., 2013, Budżet zadaniowy w miastach na prawach powiatu, *Studia BAS*, No. 1(33).

Lubińska. T. (ed.), 2007, *Budżet zadaniowy*, Warszawa: Difin.

Oleksyk P., 2012, Determinanty efektywności zobowiązań jednostek sektora finansów publicznych, *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, No. 251.

Patrzałek L., 2012, Samodzielność finansowa jednostki samorządu terytorialnego a upowszechnienie się budżetu w układzie zadaniowym na szczeblu lokalnym i regionalnym, in: B. Woźniak, M. Postuła (eds.), *Budżet zadaniowy metodą racjonalizacji wydatków*, Warszawa: SGH.

Postuła M., Perczyński P. (eds.), 2010, *Budżet zadaniowy w administracji publicznej*, Warszawa: Ministerstwo Finansów.

Public Finance Act, Ustawa z dnia 30 czerwca 2005 r. o finansach publicznych, Dz.U. nr 249, poz. 2104 z późn. zm.

Rivenbark W., Kelly J., 2006, Performance budgeting in municipal government, *Public Performance&Management Review*, Vol. 30, No. 1.

Stiglitz J., 2004, *Ekonomia sektora publicznego*, Warszawa: WN PWN.

Tomkiewicz J., 2003 Jak mierzyć efektywność wydatków publicznych? *MBA*, No. 1.

Winiarska K. (ed.), 2012, *Budżet zadaniowy w teorii i praktyce*, Warszawa: C.H. Beck.

Rola rachunkowości w pomiarze efektywności jednostek samorządu terytorialnego

Streszczenie. *Artykuł ma na celu wskazanie kluczowych czynników niezbędnych do oceny efektywności w podsektorze samorządowym sektora finansów publicznych. Nie tylko zaprezentowano, ale przede wszystkim przeanalizowano i wyodrębniono najistotniejsze czynniki pomiaru efektywności w JST. Ograniczone środki budżetowe przeznaczane na ciągłą działalność powinny być wydatkowane w sposób jak najbardziej efektywny. Autor proponuje wdrożenie procedury budżetowania zadaniowego, która nie jest obowiązkowa w działalności jednostek samorządowych. Procedura ta jest bardzo pomocna w kompleksowej ocenie działalności jednostki. Nie jest jednak idealna, ponieważ stwarza poważne zagrożenia związane z przygotowaniem nierzetelnej oceny na podstawie doboru niewłaściwych mierników efektywności. Zagrożenia te wynikają najczęściej z chęci ukrycia przez zarządzających własnych błędów, które są zwykle skutkiem błędnych, przeszłych decyzji.*

Słowa kluczowe: *budżetowanie, efektywność, kontrola zarządcza, nowe zarządzanie publiczne*

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Innovation in financial statements – evolution and trends

Abstract. *This paper is an attempt at predicting the direction in the evolution of financial reporting in the context of its potential as a source of information on innovative processes undertaken by companies as part of their economic operation. The article uses literature studies, an analysis of the regulation of accounting law, observations of business practice, and conclusions arising from the research presented in earlier publications of the author.*

Keywords: *innovation, financial statements, integrated reporting, standards of accounting*

Introduction

Innovation has always been at the centre of human endeavours. Nowadays, its position and significance reached new levels. To a large extent, innovation stimulated the development of competitive organisations and reorganised many aspects of their operation. Innovation was also a strong stimulus for changes in business practice, which were further reflected in legislative regulations. On the one hand, this elevated status of innovation can be attributed to the fact that innovation is an inherent determinant of operational development in many companies (particularly the high-tech segment). On the other hand, the outcome of innovation is a factor that defies prediction. Activities undertaken in relation to innovative processes are burdened with considerable risk, uncertainty, and require steep financial outlay. As a result, innovative processes should be subject to continuous control at every stage. Furthermore, policies of innovation should be disclosed and presented to company stakeholders. To meet this requirement, companies need suitable sources of information.

Changes in accounting standards have been introduced to define these additional sources of information, as instruments for monitoring the course of innovative processes and for the evaluation of its effects. Information on methods and effects of innovative activities undertaken by companies gained the interest of both internal and external stakeholders, resulting in changes to financial reporting standards. Financial reporting has evolved into integrated reporting, following the inclusion of additional information presented in separate reports. Recently, evidence for opposite trends can be observed. The 'lean' approach, typically associated with management sciences, has also found its way into accounting science. It advocates careful selection of information that is relevant and indispensable for decision-making purposes by means of limiting the volume of obligatory reports. In this context, and in view of the specificity of innovative processes, reasonable doubts may be raised with regard to the scope of information disclosure referencing the innovative activities. Is it relevant and complete? How to present it? Does it meet the stakeholders' expectations?

This paper is an attempt at predicting the direction in the evolution of financial reporting in the context of its potential as source of information on innovative processes undertaken by companies as part of their economic operation. The deliberations are based on literature studies, analyses of balance sheet regulations, empirical observation and results of research studies presented in earlier publications by this author. Article is a theoretical considerations.

1. Financial report as a source of information on innovative processes

The nature of reporting is to identify, measure (in financial terms) and present to the public all the complex elements of economic operation, including the scope and scale of innovative processes undertaken by the company. The task of company accounting system is to provide clear, relevant and, above all, reliable, verifiable and non-biased information on the company's financial position, assets and economic operations (also those of innovative character). At the same time, taking into account the principal roles of accounting – information, control, management, and planning – the results, in the form of generated information, should be disclosed in financial statements. To this effect, company information systems are adjusted to the needs and expectations of the decision-makers [Piotrowska 2013: 420]. The need for disclosing information on adopted business models and innovative activities has initiated changes in the financial reporting standards, with the objective of increasing the informative potential of obligatory statements.

Information on the realisation of individual stages of innovative processes, the scale of operational involvement (time, manpower), their measurable effects (both financial and non-financial), the scale and classification of the associated expenditure and its effectiveness in relation to the present or expected results can also take non-financial form. Not all the information in this context can be readily generated by the accounting system, but is nonetheless of great importance and should be taken into account in decision-making processes. This is why financial information from accounting systems should be supplemented by non-financial information generated by other evidencing systems.

A traditional financial statement provides information only with respect to research and development activities as sources of innovation. In accordance with balance sheet regulations, the effects of R&D activities are part of the entity's intellectual resources (experience, knowledge, potential, skills, and competences) and, as a non-material asset, should be reflected on company balance sheet.[1] Its value (the cost of production) should be represented incrementally for each relevant reporting period. On the other hand, the cost of R&D burdens the financial result of the period in which it was incurred. However, financial reporting standards do not define the scope of obligatory disclosure in this respect, nor provide separate items for its presentation. In effect, information users cannot access information on this type of cost, unless the entity itself chooses to disclose them, for example in the notes to the financial statement.

Presentation of innovation in financial statement is determined by their identification and cost valuation. The effect of this process, identified as a balance sheet item or result item (resource or process) and properly valued, is presented as part of the traditional financial statement, but only if the company is able to identify and quantify the economic category associated with the innovation effects (balance sheet) or processes (profit and loss account). It can also be presented descriptively and formally as part of the notes to the financial statement. It must be noted that financial reporting information is typically adjusted to fit the needs of external users, since internal stakeholders have immediate access to the company accounting system as a source of supplementary reports and detailed accounts required for management purposes.

[1] *Międzynarodowe Standardy Sprawozdawczości Finansowej 2011*, International Accounting Standards Committe, Londyn 2011, translated and published by the Association of Accountants in Poland; Ustawa z dnia 29 września 1994 r. o rachunkowości, Dz.U. nr 121, poz. 591 z późn. zm.

Therefore, since the course of individual stages of innovation processes and their results are not properly reflected in traditional financial statements, the need arose to initiate changes and trends in the evolution of financial reporting to meet this requirement [Jędrzejka 2012: 313-325; Krasnodomska 2012a: 68-86; Szczepankiewicz 2014: 135-148].

2. Evolution in the presentation of innovation in financial statements

Financial reporting is a systematised (properly selected, grouped and aggregated) set of synthetic information of financial nature, sourced mainly from the accounting or other evidencing systems, relating to past and present financial condition, asset structure and financial result, and applicable for the purpose of making informed decisions for the future [Samelak 2013: 79]. The scope and the quality of reported information is defined in the context of requirements and needs of information users. Changes in the needs and requirements determine the character of changes in the scope and methods of presentation, but not the quality of information disclosed for the purpose. This is why financial statements must fulfil the requirements of balance sheet law, standards of accounting and the adopted accounting policies.

The need for information on innovative processes and company policy of innovation has been reflected in changes to the financial reporting. Statement users, by defining the scope of information required for decision-making, specified the set of obligatory disclosures, their content and their presentation. This had the effect of setting trends for the reformulation of financial statements and their adjustment to stakeholders' expectations. The formal scope of disclosure, as specified in reporting regulations, has been supplemented by non-financial information as part of companies' information policy within the broader context of corporate governance.

The appreciation for the role of innovative activities largely determined the information requirements in this area. Modern trends related to changes in financial reporting, introduced in reaction to the information needs of statement users voiced with respect to innovative activities, are presented in Table 1.

It must be noted that information on innovations undertaken by companies (their forms, quality, application results) has become a major area of interest for the users of external financial reports. This was reflected in changes to formal balance sheet regulations. On the other hand, the need for monitoring the course of innovative activities, evaluating their effects and assessing their impact on

Table 1. Trends in the development of innovation content and its presentation in financial statements

No.	Directions in the evolution of modern financial reporting	Disclosures and methods for presentation of information on innovative activities – the scope
1.	Increasing clarity and transparency of information disclosed in financial statements.	Subjectivism in the evaluation of innovations makes it difficult to maintain the neutrality in reporting.
2.	Broadening the objective scope of financial statements.	Supplementing information on innovative activities (as part of the management report or as a report on intellectual capital).
3.	Measuring risk and disclosing its effects in financial statements.	Disclosure of risk management information (risk measurement, safety measures, internal control) on the results of innovative processes.
4.	Measuring the entity's market value based on disclosed information.	Measurement and valuation of intellectual capital as an effect of innovative activities.
5.	Disclosing of information from management accounting.	Disclosure of information on policy of innovation on both operational and strategic level within the adopted business model.
6.	Adjusting the content of financial statement to suit the requirements of its users.	Disclosure of information on the present innovation processes, adjusted to the needs of the stakeholders.
7.	Standardisation and harmonisation of financial reporting.	Unification of methods for identification, valuation and presentation of information on innovative activities.
8.	Attempts at changing the present model of reporting or defining a new model.	Supplementing the traditional financial statement with reports on intellectual capital, including separate items for the presentation of innovative activities.
9.	Changing the form of financial statements – based on application of new IT and digital technologies.	The use of integrated IT systems to support the information process in its innovative aspects (promptness, clarity, own and easily accessible knowledge base).
10.	The strife to formulate unified standards for preparation and presentation of financial statements.	A postulate for introducing an integrated report in the conceptual framework for international reporting standards.
11.	Transforming financial statements into business reports.	Opening the prospect for disclosing information on innovation policies and business models.
12.	Promoting ethical standards and corporate social responsibility principles.	Disclosure of accounting policies with respect to identification, valuation and presentation of information on innovative processes, in line with the principles of accuracy and continuity, with particular attention to the principles of professional ethics.

S o u r c e: own research, based on Samelak 2013: 113.

company profits has brought changes within the area of management accounting. The supplemental set of information on company policies of innovation, as generated by various evidencing and information systems has led to the initiation of evolutionary changes of traditional financial reporting into the so-called integrated reporting. Since disclosure of innovation in traditional financial statement format proved impossible (despite many attempts), experts postulated to utilise separate information reports within the broader framework of integrated reporting.

3. The role of integrated reporting as a source of information

Presentation of information is directly related to its disclosure and publication. The scope of disclosure and the use of specific presentation methods are in direct association with the adopted accounting policy, the pending regulations, and the knowledge/information requirements of its users. Disclosure of information beyond the scope of financial statement format plays an increasingly important role on global markets. Users are particularly interested in those asset items which directly impact company competitive advantage or attract potential investors, but the accounting system does not perceive this type of information in terms of identifiable and measurable resources fit for presentation, due to its non-financial character. It must also be emphasised that no single reporting document can be expected to reconcile all the various information needs of assorted external users. As a result, the information demands from various decision-makers largely determined the need for disclosure of non-financial information, presented in separate reports attached to statements within the broad framework of integrated reporting.

The principles and the scope of financial disclosures are regulated by formal legislative regulations, while the scope of non-financial disclosures is a product of the policy of information adopted by the entity itself. The structure of an annual report (integrated) for public listed companies is defined in formal regulations, but for other types of companies, the format of disclosure is a product of common law. The annual integrated report should contain: a letter to the stakeholders, a financial statement, a management report, separate reports on economic risk, intellectual capital and environmental impact, and a report from audits of reports contained in the annual integrated report [Samelak 2013: 118; Krasnodomska 2012b: 101-110]. The integrated report preserves the dominant role of financial statements and management reports as sources of primary and supplemental financial information for decision-making purposes, but it also retains the potential to present a true image of economic activities undertaken by the company and of their impact on asset position, also with respect to the realisation of the company's policy of innovation.

A management report for a company involved in innovative activities should provide detailed information on the most significant R&D objectives (under way or completed), including their purpose, course of realisation, risks, results (such as patents, new or modernised products, new technologies), implementation effects, delegated manpower, financing sources and the anticipated benefits resulting from their implementation [Fedak 2007]. It must be noted that the principal idea is to present a general overview of company activities in the R&D area and their advances, as opposed to a detailed account of individual tasks and processes (which are typically confidential).

The end result of innovative activities may be disclosed as part of company resources. Based on proper identification and quantification, it may be presented in a financial statement. On the other hand, the sum of generated knowledge, skills and competences (as part of company potential that may impact its value) may be presented in additional reports attached to the annual report within the framework of integrated reporting. The considerable uncertainties and risks associated with innovative activities make it important to properly identify and measure the risk level as well as define the acceptable risk level. Information on methods used in risk identification and management is of great value to external stakeholders, therefore it needs to be disclosed in the management report or presented in a separate risk report.

To sum up, it must be stressed that financial statements (in its traditional form) should be supplemented by management reports, intellectual capital reports and reports of risks involved in innovative processes (often unpredictable and uncertain, but always burdened with steep outlays). The scope of information presented in supplementary reports is not regulated by any legislative provisions or formats of presentation. This raises reasonable doubts as to their presentation, structure and level of detail. Some experts believe that the scope of this type of information should be defined in formal regulations, others suggest to determine it by concentrating on the standards and quality of accounting. The search for solutions in fair and accurate presentation of methods and effects of innovative processes is ongoing.

4. Reporting of innovative activities – postulated changes

Further direction of changes in reporting innovative activities involve modification of the existing formats of reports, to make them more adjusted to the information requirements of the users. At the same time, there is some evidence of the opposite trend, postulating a considerable reduction in the scope of disclosures, but with more emphasis put on the quality of such information. The 'lean' concept, adopted with some success in both theory and practice of management, has also made its appearance in the context of reporting. The previous approach, based on excessive use of numerous information sources and multiple reports, has proven ineffective. Reduction of disclosure scope seems necessary, but this again raises reasonable doubts. How to modify the existing sources to reduce the amount of information while improving its informative value? Do we need to devise other reporting formats or should we attempt to modify the existing forms? Or should we eliminate some of the reports as obsolete for decision-making purposes?

One of the popular postulates is the concept of knowledge-based balance sheet presenting competence assets. Niemczyk suggests to include innovative (R&D) projects in the calculated value of their associated costs. This would take the form of supplementing an additional item on the balance sheet, offset by the company intellectual capital [Niemczyk 2013: 177]. The effects of innovative activities come in the form of knowledge, skills and competences, which constitute a company resource. The lack of explicit correlation between the volume of knowledge and the resulting profits for the company makes it difficult to accurately identify and value knowledge as a resource, not to mention its presentation in balance sheet format. The postulate of using competence assets as part of the knowledge-based balance sheet and presenting them in terms of the associated cost offset by the intellectual capital seems interesting, but it does not depart from the earlier attempts at identifying and measuring intellectual capital for balance sheet purposes. These concepts proved ineffective and resulted in the introduction of a separate type of reports within the framework of integrated reporting.

The very concept of disclosing the cost of competence assets and entering it as part of non-balance evidencing based on competence reports, as well as measuring and presenting competence assets in terms of the associated costs seems acceptable. However, the idea of presenting it as an equivalent of intellectual capital (particularly across the consecutive reporting periods) with no method to assess its fair value may raise doubts as to the quality of the resulting reporting information. Since the utility of such information, the reliability of calculations, and the spread of balance sheet representation over multiple reporting periods are being questioned, further research effort is needed to ensure (without a shadow of a doubt) that the approach based on identification and valuation of competence assets can be reliably applied in various settings. Ideally, this would help formulate a universal model for the identification and valuation of competences for the purpose of disclosure and presentation as part of financial reporting. The recent postulates for reactivation of the prudence principle (adjusted to the requirements of the present model of financial reporting) might be of some help in this effort. If we can anchor the identification, valuation and presentation of data in the context of prudence principle, the effects will more accurately reflect the 'true and fair' postulate, to the benefit of the users of reporting information [Gos, Hońko 2015: 39].

To sum up, it may be observed that the scope of disclosure is defined by: formal regulations defining the scope of information to be disclosed obligatorily by companies in line with the adopted accounting policy; by the demand for (or interest in) specific information for decision-making purposes (particularly in the context of the steady increase of economic and information awareness on the part of potential investors, as one of the results of rapid economic development); and by the company itself, since it is for the company to decide on the scope of information to be disclosed without breaching the legislative regulations and without risking the loss of confidential information. This concern is particularly evident in relation to innovative activities developed as a result of research and development efforts.

Conclusions

Based on the research results (literature studies, analyses of balance sheet regulations and empirical studies), the author was able to formulate the following conclusions:

1. Companies willing to preserve their competitive advantage on modern global markets must undertake innovative activities and put a strong focus on research and development.
2. Innovations, as any other process, should be subject to monitoring and control, their results should be evaluated, and the related information should be presented to external decision-makers.
3. Users' demand for non-financial information, including information on innovative activities, resulted in the pressure to adjust the present format of financial reporting and to transform it into integrated reporting.
4. Within the framework of integrated reporting, financial statements retain the status of the main source of information on the results of innovative processes, but they should be supplemented by additional information provided in management reports, reports of the associated risks, and reports on intellectual capital,
5. More and more postulates are formulated in favour of transforming the traditional balance sheet approach into knowledge-based balance sheet formula to better suit the needs of company stakeholders – this stage of the evolution, however, requires further studies.
6. The opposite trend involves postulates based on the application of the 'lean' concept in financial reporting, i.e. limiting the quantity of information sets and sources, while retaining or improving its quality; this approach may be

facilitated by the reinterpretation of the prudency principle within the accounting standards framework.

To sum up, it may be worth stressing that proper management of innovative processes requires direct access to information on the effects of the policy of innovation and its disclosure to external decision-makers. For external stakeholders, the financial statement remains the most important source of financial information, while non-financial disclosures are typically presented in reports supplemented to the statement within the integrated reporting formula. The complexity of this process largely determines the need for accurate recognition of the objectives (forms of innovation) and stages of realisation, to ensure proper identification, valuation and presentation of the respective information for the purpose of integrated reporting. The present changes and trends in financial reporting seem to favour further reduction of information quantity while retaining or improving its quality. This approach may significantly improve the utility and versatility of disclosures, particularly if reinforced through the 'reactivation' of the prudency principle.

References

Fedak Z., 2007, Sprawozdanie z działalności. Zamknięcie roku 2007, *Rachunkowość*.

Gos W., Hońko S., 2015, Reaktywacja zasady ostrożności, in: A. Kamela-Sowińska (ed.), *Teoria i historia rachunkowości*, Poznań: Wyd. UE w Poznaniu.

Jędrzejka D., 2012, Raportowanie zintegrowane jako nowe podejście do współczesnej sprawozdawczości, *Acta Uniwersitatis Lodziensis, Folia Oeconomica*, No. 266.

Krasodomska J., 2012a, Ewolucja sprawozdawczości finansowej w kierunku raportowania zintegrowanego na przykładzie spółek Nordisk i Lotos, in: B. Micherda (ed.), *Kierunki ewolucji sprawozdawczości i rewizji finansowej*, Warszawa: Difin.

Krasodomska J., 2012b, Zintegrowana sprawozdawczość spółek w 2020 roku, *Zeszyty Teoretyczne Rachunkowości*, No. 66(122).

Międzynarodowe Standardy Sprawozdawczości Finansowej 2011, International Accounting Standards Committe, Londyn 2011, translated and published by the Association of Accountants in Poland.

Niemczyk L., 2013, *Rachunkowość finansowa aktywów kompetencyjnych i kapitału intelektualnego*, Rzeszów: Wyd. Pacioli Institute.

Piotrowska K., 2013, Rola rachunkowości w dostarczaniu informacji o procesach innowacyjnych zarządzającemu, in: E. Nowak, M. Nieplowicz (eds.), *Rachunkowość a controlling*, Wrocław: Wyd. UE we Wrocławiu.

Samelak J., 2013, *Zintegrowane sprawozdanie przedsiębiorstwa społecznie odpowiedzialnego*, Poznań: Wyd. UE w Poznaniu.

Szczepankiewicz E., 2014, Ewolucji sprawozdawczości przedsiębiorstw – problemy zapewnienia porównywalności zintegrowanych raportów z zakresu zrównoważonego rozwoju i CSR, *Finanse, Rynki Finansowe, Ubezpieczenia*, No. 71.

Ustawa z dnia 29 września 1994 r. o rachunkowości, Dz.U. nr 121, poz. 591 z późn. zm.

Prezentacja innowacji w sprawozdawczości finansowej – ewolucja i kierunki zmian

Streszczenie. *Celem artykułu jest próba udzielenia odpowiedzi na pytanie, w jakim kierunku ewoluuje sprawozdawczość finansowa jako źródło informacji o realizowanych w przedsiębiorstwie innowacjach i jakie mogą być dalsze kierunki tych zmian. W artykule wykorzystano analizę literatury przedmiotu, regulacji prawa bilansowego i obserwacje praktyki gospodarczej oraz wnioski wynikające z prowadzonych badań prezentowane we wcześniejszych publikacjach autorki.*

Słowa kluczowe: *innowacje, sprawozdanie finansowe, sprawozdawczość zintegrowana, informacja sprawozdawcza*

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A comparison of the efficiency on selected analytical methods in debt prediction

Abstract. *The aim of the article is to compare selected discriminant models and the bankruptcy chance measure in credit risk evaluation. To this end, the following elements shall be employed: the classification matrix and Brier score. The outcomes of the analyses shall be confronted with a credit risk synthetic analysis performed by banks, which takes the form of the bank liability qualification from a given entity to the appropriate liability category. The analysis shall be performed with the use of financial data of 77 service providers housed within the Wielkopolskie voivodeship. The study results indicate that the degree of convergence in bank ratings related to credit risk, with indications of discriminant analysis models (88-94%), is higher than in the case of using a modified bankruptcy chance meter. In the latter case, the convergence with the bank rating amounts to 70%.*

Keywords: *discriminant analysis, bankruptcy prediction models, credit risk, bank rating*

Introduction

Despite the increasingly sophisticated techniques for detection, assessing and managing credit risk, it still belongs to the key financial risks in banks. Banks have a statutory duty to assess creditworthiness; at the same time the legislator left them freedom to choose the tools for the risk assessment. It is in practice that the most commonly used techniques are classification systems such as credit ratings or expert systems. An alternative approach might be the discriminant analysis, the logit analysis or models based on forecasting the chance of survival of the entity.

The purpose of this article is to compare the effectiveness of the selected discriminant models and the bankruptcy chance measure in the assessment of the credit risk. The results of the analyzes were confronted with a synthetic credit risk assessment carried out by banks, which takes the form of qualification of the payment due to the bank from the given entity to the appropriate category of receivables.

1. Methodology

For the purposes of this study, Polish universal models of the discriminant analysis as well as a modified bankruptcy chance measure were used.

The rationale behind using exclusively native discriminant analysis models results from many previous studies [Prusak 2005: 152-153; Stefański 2010a: 251--264] that confirm the higher predictive ability of the models prepared in conditions similar to those under which the businesses operate.

Universal models are the most popular in the literature and subjected to empirical tests most frequently despite the reported doubts about the correctness of such proceedings. More and more often, while assessing prospects for modeling a company bankruptcy, it is indicated that the specificity of the industry or the sector should be taken into account. Lack of such a specificity or its improper use is very often shown in the literature as a deficiency limiting the use of discriminant models [Kitowski 2012: 264-268; Rogowski 2008: 248].

Tests of the discriminant models are very often carried out without distinction of the industry or the sector in which the company operates, although it is possible to find studies which include results of research carried out for different economic sectors. An example of such procedure is the study of P. Antonowicz [2007], who separately examined the effectiveness of the selected discriminant models in individual sectors. Since for the needs of this article exclusively service companies were selected, only such models were applied, which had had 95% correct assignment for the group of service companies in the P. Antonowicz's tests. The following models were applied:

– Prusak's model Z_{BP1},
– INE PAN Z_7,
– INE PAN Z_6,
– The Poznan Model,
– INE PAN Z_5,
– Hołda's Z_H.

The discriminant function developed by B. Prusak [2005: 149-155] is one of the latest models of the enterprise financial risk assessment. The author conducted a study on 80 enterprises, of which half were bankrupted entities. It was through testing 27 financial ratios that he developed among others the ZBP1 model which takes the following form.[1]

$$Z_{BP1} = 6{,}5245\ X_1 + 0{,}1480\ X_2 + 0{,}4061\ X_3 + 2{,}1754\ X_4 - 1{,}5685,$$

where:

X_1 – operating result/average value of total assets,

X_2 – operating costs (excluding other operating costs) / average value of short-term liabilities excluding special funds and short-term financial liabilities,

X_3 – current assets / current liabilities,

X_4 – operating result / net revenues from sales.

The border point was set at the level of –0.13, which means that if the value of the ZBP1 function is equal or below the value of –0.13 then the company is under the risk of bankruptcy within a year. The gray zone in which there is a relatively high probability of making an incorrect classification covers a range of values <0.13; 0.65>.

Studies carried out by INE PAN under the direction of E. Mączyńska [Mączyńska, Zawadzki 2006: 205-235] resulted in developing 7 bankruptcy prediction models, which differ in the number of the indicators used, their design and content.[2] The highest accuracy in predicting bankruptcy of service enterprises was achieved by the Z5, Z6 and Z7 models which take the following form:

$$Z_5 = 9{,}004\ X_1 + 1{,}177\ X_2 + 3{,}134\ X_3 + 0{,}500\ X_4 + 0{,}160\ X_5 + 0{,}749\ X_6 - 1{,}962,$$

$$Z_6 = 9{,}478\ X_1 + 3{,}613\ X_2 + 3{,}246\ X_3 + 0{,}455\ X_4 + 0{,}802\ X_6 - 2{,}478,$$

$$Z_7 = 9{,}498\ X_1 + 3{,}566\ X_2 + 2{,}903\ X_3 + 0{,}452\ X_4 - 1{,}498,$$

where:

X_1 – operating result / total assets,

X_2 – equity / total assets,

X_3 – (net result + depreciation) / liabilities,

X_4 – current assets / current liabilities,

X_5 – working capital/fixed assets,

X_6 – revenues from sales / total assets.

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[1] The author has also developed 3 other models for bankruptcy prediction, however, the ZBP1 model is the most successful in predicting bankruptcy of service companies.

[2] Thanks to this possibility, the discriminant models developed in the INE PAN can be used under conditions of incomplete data or limited availability of data for several years.

The border value for all functions is at the level of 0, which means that the group of companies at risk of bankruptcy include the entities for which the value of the Z function is less than 0. Otherwise, the companies belong to a group of enterprises with a good financial standing.

The Poznan Model was developed by a three-person team under the direction of M. Hamrol in cooperation with B. Czajka and M. Piechocki. By examining financial statements of 100 Polish companies using 31 financial ratios, the authors developed a model which takes the following form [Hamrol et al. 2004: 35-39]:

$$Z = 3{,}562\ X_1 + 1{,}588\ X_2 + 4{,}288\ X_3 + 6{,}719\ X_4 - 2{,}368,$$

where:

X_1 – net result / total assets,
X_2 – (current assets – inventory) / current liabilities,
X_3 – fixed capital / total assets,
X_4 – result from sales / revenues from sales.

The border point in the model presented above is set at 0, which means that the financial condition of a company above this value indicates no danger of bankruptcy.

The last model tested for effectiveness in assessing credit risk of service companies is the model of A. Hołda [2001: 308] which takes the following form:

$$Z_H = 0{,}681\ X_1 - 0{,}0196\ X_2 + 0{,}00969\ X_3 + 0{,}000672\ X_4 + 0{,}157\ X_5 + 0{,}605,$$

where:

X_1 – current assets / current liabilities,
X_2 – total liabilities / total assets,
X_3 – net result / average annual total assets.
X_4 – average short-term liabilities / operating costs.
X_5 – total revenue / average annual total assets.

Since the sample was balanced, the border value for the companies was 0, which means that companies with negative values were ranked among bankrupts. The model under discussion has also a “gray area,” which includes both objects belonging to bankrupts and companies in good condition. A. Hołda estimated its scope assuming a lower limit uncertainty value at –0.3 and the upper one at 0.1.

For the needs of the study, an alternative way of estimating the risk level in the form of the bankruptcy chance measure, developed by A. Nehrebecka and A.M. Dzik [2012] was applied. It was in their study that they included two models that can be used to assess probability of bankruptcy of a company and one early warning system model. In this article the model I[3] was applied, which is illustrated in the Table 1.

[3] The model II was not used because of the limited availability of financial data (financial information from 8 years would be needed).

Table 1. Evaluation of enterprises on the basis of the model I

Variables	Weight of variables in final evaluation (%)	Value	Partial evalua-tion
Share of cash in assets (average for 3 years)	12	–∞ - 0,01016	0
		0,01016 - 0,0310	41
		0,0310 - 0,1678	70
		0,1678 - +∞	133
Sales field (0 – non-exporter, 1 - exporter, 2 - specialized exporter)	13	0	36
		1	0
		2	166
Liquidity ratio	15	–∞ - 0,8246	0
		0,8246 - 1,8707	86
		1,8707 - +∞	121
Financial costs coverage ratio	37	–∞ - –1,2581	0
		–1,2581 - 2,4129	120
		2,4129 - +∞	327
Debt to assets ratio (average for 6 years)	13	–∞ - 0,35203	118
		0,35203 - 0,51728	77
		0,51728 - 0,80442	36
		0,80442 - +∞	0
Revenues from sales	12	–∞ - 1759	0
		1759 - 29973	135
		29973 - +∞	84

S o u r c e: Nehrebecka, Dzik 2012: 16.

The final evaluation (the sum of partial evaluations) is created in order to identify the bankruptcy risk of a given company on the basis of the Table 1, where appropriate ranges of financial ratios values were assigned to partial evaluations. The authors of the model concluded that none of the companies, which received an evaluation higher than 600 points went bankrupt within a year. In the case of companies, for which the evaluation was lower than 200 points, the bankruptcy was almost certain. Among the companies, with the assessment within the range of from 200 up to 300, there were much more companies, which went bankrupt.

The early warning system is designed to deliver information on the possible risk three years before its appearance, which in turn differs from the rules applied in the discriminant analysis models. The design of Nehrebecka and Dzik bankruptcy chance measure used in the study contains one of the indicators based on the financial information for the period of 6 years (debt to assets ratio – its average value for a period of six years precisely), which greatly reduces the possibility of its application in practice. For the examined population, it could be used only in 6 cases (from among 77). Therefore for the needs of this study, the structure of the measure was modified and the debt to asset ratio applied was calculated according to the construction given by the model authors but for a period of three years.

The comparison of the effectiveness of individual models was carried out on the basis of the classification matrix and in case of discriminant models also of the Brier score [Prusak 2004].

While assessing the effectiveness of the individual models, their results were related to the classification of receivables to the category of endangered or non-endangered, which is used by banks under the provisions of the Regulation of the Minister of Finance on creation of reserves for risk resulting from the banking activity.[4] If a company was qualified to the endangered category and the model indicated a high risk of bankruptcy, it was considered as a correct classification. Similarly, in a situation when the liability was included in the category of non-endangered and the model indicated a low risk of bankruptcy. However, if the model showed a low risk of bankruptcy and the debt of the given entity was qualified as endangered or if the model indicated a high risk of bankruptcy, while the debt was classified as non-endangered, the classification was recognized as incorrect.

It is with respect to numerous publications on assessing the effectiveness of bankruptcy prediction by forecasting models that this paper distinguishes:

– research sample – the study was conducted only on a group of small and medium-sized enterprises in the service sector,

– the way of defining “a bankrupt” as an entity, from which receivables are classified as threatened under the provisions of the Regulation of the Minister of Finance on creation risk related reserves associated with bank activities.

This paper is an attempt aiming at searching for possibilities of applying or adapting solutions available in the literature for the assessment of the likelihood of financial problems or problems with continuation of business activities of small and medium-sized enterprises which could be useful for banking; particularly for cooperative banking, which sees its development opportunities in cooperation with a group of smaller companies and in which the systems of credit risk assessment have been being intensively updated and modernized in the last period.

[4] Rozporządzenie Ministra Finansów z dnia 16 grudnia 2008 r. w sprawie zasad tworzenia rezerw na ryzyko związanych z działalnością banków, Dz. U. Nr 235, poz. 1589 z późn. zm.

2. The research sample

The financial results obtained for the research sample come from a group of small and medium-sized companies located in the Wielkopolskie Voivodeship. They were collected in the course of the project "Researchers in Wielkopolskie companies – research internships as a chance to increase innovation and competitiveness in the key industries of the region" (POKL.08.02.01-30-004 / 11) in cooperation with SBG Bank SA and affiliated cooperative banks, co-financed by the European Union under the European Social Fund. The data were collected between January and April 2012 and they provide information on 642 business entities in total. The financial results of the analyzed entities were obtained from credit applications submitted in the period of from 2008 till 2010. This paper focuses exclusively on companies operating in the service sector and there were 198 such entities in the surveyed group.

It is important to determine, in which year the examined entities obtained bank credits. The recent financial results come from 2010, so if bank credits were granted in the same year then the probability of their classification to the group of endangered credits is far lower than in the case of loans granted in 2008 or 2009. Therefore, there were selected 77 entities from the group of service companies, which obtained credits in 2009 and in this way the analysis was narrowed.

The indications of the selected analytical models were compared one to another and to the category of receivables, to which the debt of the given entity was classified. Due to the delay in the transmission of the financial information by borrowers in relation to the data on which this information was created, the data concerning the category of debts of the analyzed entities as at 30.06.2011 in relation to the indications of the model using the financial data for the year 2010 were used. This procedure enables comparing the analysis results, because the data and messages compared are based on financial data from the same period. There is a danger that the classification of receivables to the appropriate group in June 2011 will be a consequence of late payment in the first half of 2011 but the discriminant analysis models and the bankruptcy chance measure should detect such cases.

In the population under the study these were sole proprietorships which were dominant (45.5%); the share of partnerships and companies was identical (27.3%). Given the number of employees in the studied population, the entities employing less than 50 people were dominant (together, they represent 75%).

In view of the fact that the study population is dominated by relatively small entities, it seems to be reasonable to take a look at their structure in the context of the reporting obligation. 51 entities in the study population, i.e. 66%, prepared simplified financial statements.[5] A complete financial statement according to the provisions of the Accounting Act was prepared by 26 entities, representing 34% of the study population. Bearing in mind that the entities preparing simplified reports were not obliged to record economic events in the manner provided by the Accounting Act, these data were verified in the process of the credit risk assessment using the register of sales and purchases of the individual entities, inventories, etc., therefore it should be kept in mind that the data should be treated as estimates, however, in this form, they create the information for decisions made by financial institutions.

3. Classification of receivables from the examined entities

The classification of bank receivables in Poland to the relevant risk categories is carried out according to the Regulation of the Minister of Finance on creation risk related reserves associated with bank activities and is based on two independent criteria: timeliness of payments and economic and financial situation of a debtor. It should be emphasized that as regards the criterion of the economic and financial situation, banks have complete freedom to use any methodology, tools and specific criteria and this freedom is used by them as experience shows [see e.g. Wiatr 2011: 123-229; Stefański 2010: 133-142].

Receivables are classified as: normal, under observation or endangered (among them there are: below the standard, doubtful and lost ones). The share of endangered receivables in total receivables of the Polish banking sector amounted to 7.5% as at 30.06.2011 and in the case of credits for businesses it was 11% [Urząd Komisji Nadzoru Finansowego 2011: 5]. As regards cooperative banks, the endangered receivables represented 5.5% of the portfolio at the same time, while their share in credits for businesses was 9.7%.[6]

In the population under study, the percentage of the endangered credits (in value terms) was on a slightly higher level than in the banking sector and amounted to 12.7%. In terms of volume, this percentage was slightly lower and amounted to 10.4%; the receivables from 8 entities were classified as endangered. Therefore, it can be concluded that the quality of the credit portfolio under study corresponds to the quality of the credit portfolio in the banking sector.

[5] The term "simplified financial report" means a report prepared according to a pattern provided by a bank and this solution covers the group of entrepreneurs that keep a book of revenues and expenditures according to general provisions; the study did not included taxpayers settling accounts with a tax office on the basis of a lump sum or a tax card.

[6] www.knf.gov.pl/opracowania/sektor_bankowy/dane_o_rynku/Dane_miesieczne [29.10.2013].

4. The results of the study

For each of the entities under study, the value of the discriminant function proposed above was calculated on the basis of financial data from 2010 and the aggregate results of the analysis are presented in the Table 2. If the model indicated that the risk of bankruptcy is very low and the receivable is not included in the category of endangered receivables then the indication of the model is considered to be correct. Similarly, if the model indicated a high risk of bankruptcy and receivables were included in the category of endangered receivables, then the indication of the model is considered to be correct. In the opposite situations, i.e. if the model indicates a low risk of bankruptcy and receivables fall into the category of endangered ones or if the model indicates a high risk of bankruptcy and the debt is not classified as endangered then such indication of the model is considered to be incorrect.

Table 2. The percentage of correct indications of the models

Model	Non-endangered receivables	Endangered receivables	All receivables
Z_{BP1}	79,7	75,0	79,2
INE PAN Z_7	92,8	75,0	90,9
INE PAN Z_6	92,8	62,5	89,6
The Poznan Model	89,9	75,0	88,3
INE PAN Z_5	92,8	62,5	89,6
Z_H	95,7	75,0	93,5
Bankruptcy chance measure[7]	71,2	50,0	69,2

S o u r c e: author's research.

The convergence analysis of the actual classification of the bank receivables from the given entity to a particular category of risk with an indication of the discriminant analysis models used in the study indicates that the percentage of the

[7] The modified measure of the probability of company bankruptcy was calculated for 65 companies (in 59 entities receivables were classified as non-endangered, in 6 entities were classified as endangered). The number of observations is lower than the whole population because for 12 companies financial statements from last 3 years were not available. Additionally, the measure of the probability of company bankruptcy was not modified for 6 companies, for which financial statements for last 6 years were available, then in 4 cases the results of the measure agreed with the bank assessment.

Table 3. The value of the Brier score for the applied models

Model	Brier score
Z_{BP1}	3,06
INE PAN Z_7	6,70
INE PAN Z_6	61,22
The Poznan Model	3,82
INE PAN Z_5	40,01
Z_H	0,30

S o u r c e: author's research.

correct indications of the model[8] is at a similar level and ranges between 88%[9] and 94%. This percentage is significantly higher in the case of the analysis of non-endangered receivables and usually exceeds 90%. While examining the group of the endangered receivables, the consistency of the models' indications is much lower and amounts to 63-75%. This may suggest that the internal policy of banks as regards the risk assessment is far more restrictive than the assumptions for the construction of the models applied or results from a relatively small number of observations of the entities, whose receivables were classified as endangered. Among the models used in the study, the model of Hołda (Z_H) is the leading one on basis of classification consistency.

In the case of the use of the modified bankruptcy chance measure the results of the convergence with the bank assessment are lower (reach 70%) than in the case of discriminant analysis models. This may be due to both interference with the construction of the indicator, which could disrupt the system of weights and rates used as well as using the indicator for small and medium-sized enterprises, because despite the large population of entities taken into account while the indicator was calculated, it was prepared solely on the basis of the financial results of large business entities.

The prediction effectiveness of the discriminant models used in the study based on the Brier score is illustrated in the Table 3.

[8] Certainly, one may have doubts if the bank acting according to its own instructions made a correct classification of receivables but it is not the goal of this paper – the classification made by the bank was adopted in it as a reference point without assessing if it is correct or not.

[9] It does not refer to the model of Prusak (Z_{BP1}), which as the only one from the tested ones includes "the gray area" and it may be the reason why the results of its application differ from the other ones and its overall efficiency did not exceed 80%.

On the basis of the results presented in the Table 2, it can be noted that there is a large discrepancy between the values of the Brier score for the individual discriminant models. Generally, better classification results are obtained for lower values of this indicator. The lowest value was observed for the model of Hołda (Z_H), which confirms the conclusion drawn earlier on the basis of the convergence analysis. The relatively low values of the Brier score were also observed for the model of Prusak (Z_{BP1}) and for the "Poznan" model, while the worst results could be seen for the Z_5 and Z_6 INE PAN models.

Conclusions

A relatively low degree of the convergence of the overall results used for the development of the analytical models with the assessment made by banks as regards the credit risk may be due to the fact that cooperative banks (the customers from their portfolio were subjected to analysis) mostly focus on lending to small and medium-sized enterprises. In the entire cooperative banking sector, the loans to SMEs in the total volume of loans to enterprises amounted to 87.8%[10] in the examined period, i.e. 30.06.2011. It has to be noted that the percentage of enterprises which do not prepare complete financial statements can be significant, which could affect the results of this study.

The results of this study may suggest the need (in order to search for solutions with a higher predictive efficiency) for extending studies and covering the entities classified according to different criteria (e.g. legal or organizational form, as well as smaller enterprises, which were not covered by any models), which is consistent with the observations of W. Rogowski [2008: 249] as well as more intensive search for solutions for sectors or industries, which was suggested also by E. Altman [Altman, Hotchkiss 2007: 240].

References

Antonowicz P., 2007, *Metody oceny i prognoza kondycji ekonomiczno-finansowej przedsiębiorstw*, Gdańsk: Ośrodek Doradztwa i Doskonalenia Kadr.

Altman E., Hotchkiss E., 2007, *Trudności finansowe a upadłość firm*, Warszawa: CeDeWu.

Hamrol M., Czajka B., Piechocki M., 2004, Upadłość przedsiębiorstwa – model analizy dyskryminacyjnej, *Przegląd Organizacji*, No. 6.

[10] www.knf.gov.pl/opracowania/sektor_bankowy/dane_o_rynku/Dane_miesieczne [29.10.2013].

Hołda A., 2001, Prognozowanie bankructwa jednostki w warunkach gospodarki polskiej z wykorzystaniem funkcji dyskryminacyjnej Z_H, *Rachunkowość*, No. 5.
Urząd Komisji Nadzoru Finansowego 2011, *Informacja o sytuacji banków w I półroczu 2011 roku*, Warszawa.
Kitowski J., 2012, Sposoby ujmowania kryterium specyfiki branżowej w metodach oceny kondycji finansowej przedsiębiorstwa, *Zarządzanie i Finanse*, No. 4.
Mączyńska E., Zawadzki M., 2006, Dyskryminacyjne modele predykcji upadłości przedsiębiorstw, *Ekonomista*, No. 2.
Nehrebecka M., Dzik A.M., 2012, Konstrukcja miernika szans na bankructwo firmy, *Materiały i Studia*, No. 280, NBP, Warszawa.
Prusak B., 2004, Metody wykorzystywane w analizie porównawczej modeli oceny zagrożenia przedsiębiorstw upadłością, in: I Międzynarodowa Konferencja Naukowa ENTIME 2004, Gdańsk 17-18 września 2004 roku, www.zie.pg.gda.pl/~pb/ap.pdf [14.12.2015].
Prusak B., 2005, *Nowoczesne metody prognozowania zagrożenia finansowego przedsiębiorstw*, Warszawa: Difin.
Rogowski W., 2008, Dylematy wykorzystania w warunkach polskich modeli oceny zagrożenia upadłością, in: E. Mączyńska (ed.), *Bankructwa przedsiębiorstw. Wybrane aspekty instytucjonalne*, Warszawa: SGH.
Rozporządzenie Ministra Finansów z dnia 16 grudnia 2008 r. w sprawie zasad tworzenia rezerw na ryzyko związanych z działalnością banków, Dz.U. Nr 235, poz. 1589 z późn. zm.
Stefański A., 2010a, Analiza dyskryminacyjna na przykładzie wybranych modeli polskich i zagranicznych, *Zeszyty Naukowe WSB w Poznaniu*, No. 27.
Stefański A., 2010b, Czynniki uwzględniane w procesie oceny poziomu ryzyka kredytowego, *Zeszyty Naukowe Wydziałowe Uniwersytetu Ekonomicznego w Katowicach*, No. 71, K. Znaniecka, W. Gradoń, (eds.), *System bankowy i rynki finansowe w warunkach globalnego kryzysu finansowego*, Katowice.
Wiatr M.S., 2011, *Zarządzanie indywidualnym ryzykiem kredytowym. Elementy systemu*, Warszawa: SGH.
www.knf.gov.pl/opracowania/sektor_bankowy/dane_o_rynku/Dane_miesieczne [29.10.2013].

Porównanie skuteczności wybranych modeli analitycznych w prognozowaniu zagrożenia kredytowego

Streszczenie. *Celem artykułu było porównanie skuteczności wybranych modeli dyskryminacyjnych oraz miernika szansy bankructwa w ocenie ryzyka kredytowego. Wykorzystane zostały w tym celu: macierz klasyfikacji i współczynnik Briera. Wyniki analiz zostały skonfrontowane z syntetyczną oceną ryzyka kredytowego dokonaną przez banki, która przyjmuje postać kwalifikacji należności banku od danego podmiotu do właściwej kategorii należności. Analiza przeprowadzona została z wykorzystaniem danych finansowych 77 przedsiębiorstw usługowych z siedzibą na terenie województwa wielkopolskiego. Wyniki badania wskazują, że wyższy jest stopień zbieżności ocen bankowych w zakresie ryzyka kredytowego ze wskazaniami modeli analizy dyskryminacyjnej (88-94%) niż w przypadku zastosowania zmodyfikowanego miernika szans na bankructwo. W tym drugim przypadku wyniki zbieżności z oceną bankową sięgają 70%.*

Słowa kluczowe: *analiza dyskryminacyjna, modele prognozowania bankructwa, upadłość, ryzyko kredytowe*

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  Spenner P., Freeman K., 2012, To keep your customers, keep it simple, *Harvard Business Review*, 90(5): 108-114.
- **books** – last name and first name initial of author/editor, publication year, *title of book* [*italicized*], place of publication [colon], publisher:

  Lane W. R., King K. W., Reichert T., 2011, *Kleppner's Advertising Procedure*, Upper Saddle River, NJ: Prentice Hall.
- **chapters in edited books** – last name and first name initial of chapter author, publication year, title of chapter [not italicized], in: first name initial(s) and last name(s) of editor(s) (ed. or eds.), *title of edited book* [*italicized*], place of publication [colon], publisher, page range:

  Cornwall W., 1991, The Rise and Fall of Productivity Growth, in: J. Cornwall (ed.), *The Capitalist Economies: Prospects for the 1990s*, Cheltenham, UK: Edward Elgar, 40-62.
- **legislation**

  Council Directive 90/365/EEC of 28 June 1990 on the right of residence for employees and self-employed persons who have ceased their occupational activity.

  Act of 4 February 1994 on Copyright and Related Rights, Journal of Laws No. 24, item 83, as later amended.
- **studies and reports**

  World Energy Council, 2013, *World Energy Resources: 2013 Survey*, London.
- **online sources** [in square brackets, indicate when website was last accessed]

  www.manpowergroup.com [accessed May 28, 2015]

Artwork and graphics

- editable, in black and white only, with no shading
- drawings, graphs and diagrams must be supplied in their native electronic formats (*.xls or *.cdr)
- photographs – supply source files (preferably *.tif); minimum resolution: 300 dpi
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- for any artwork that has already been published elsewhere, indicate original source (or otherwise state *Source: own*)
- apply no lettering in white against black background, whether in bold or italics, and no black fills or excess frames
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Mathematical formulas

- processed using Microsoft Equation 3.0
- special attention should be given to correct placement of any sub- or super-scripts
- variables –in *italics*; numbers and digits – in normal font style
- use "·" or "×" only as the multiplication sign (rather than e.g. asterisk or letter X)
- quantities should be represented in SI units only
- any symbols must explained below formula