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Mirosław Wypych  
Paweł Trippner

## Introduction

*Management is a kind of journey the chaos, the essence of which is the control over the diversity and transformation potential conflict into cooperation*

A.K.Koźmiński

It is our great pleasure to give into the hands of readers the first issue of the journal “Entrepreneurship and Management” in the year 2015.

This scientific book is unique due to the fact that he is the full English – language release in the “Entrepreneurship and Management” series.

The prestige of this issue improved the fact that all articles contained will be included in a global resource base of scientific publications, Walter De Gruyter, GMBH.

It is the third largest in the world online database, which has in its resources researches and analyzes of worldwide scientists that are available on the website: [www.degruyter.com](http://www.degruyter.com).

Quoted above, the definition of management is one of many. It was chosen, because it reflects the wide range of topics of the issue of the scientific book “Entrepreneurship and Management”. First look at the titles of the articles suggests that there are too much disparity issues, which would indicate some kind of disorder, definitional “chaos”. However, the titles of the articles and their content are confronted with the title of the book: “The financial and economic aspects of modern management”, it turns out that the book contains an ordered set. The theoretical considerations and practical analyzes are

based on the assumption that management decisions, regardless of the place where they are taken, are having the economic dimension, especially financial.

On the one hand, every activity of organization or reasons of decisions made can be expressed in financial categories, on the other hand – no decision should be taken without considering its financial aspects. It is difficult, therefore, to imagine the governance of the organization, region or state, in case that issue of financial resources management are omitted or neglected. The above assumption is consistently respected by the authors of articles.

Finance is covering different areas of issues that to lesser or greater extent determines the modern management of organizations considered in micro- and macroeconomic terms. In this book, special attention has been paid to the following aspects:

- financial decisions in the enterprise,
- use of financial management instruments at the micro- and macroeconomic level,
- efficiency of use the research and development expenditures,
- investment activity of Polish companies in foreign countries,

It is worth emphasizing an article devoted to cognitive challenges in science management, the content of which is indirectly linked to the subject of this book. Its author pays attention to the underestimation of the qualitative area of organizations management's changes occurring in the long term. It seems that the financial aspect is an important standard for a qualitative assessment of these changes.

This scientific book contains 13 articles whose authors are mainly University of Social Sciences' academics (seven people). Four articles were prepared by the academics of the University of Lodz, one is from University of Economics in Poznan and one from University of Dąbrowa Górnicza.

It is worth mentioning that all the articles passed through the complete reviewing process. After complying remarks applied by the reviewers the articles have received the permission to be published in the „Entrepreneurship and Management” issue.

It means that articles are characterized by appropriate level of scientific maturity and depth of the research and are valuable source for science and didactic process. We invite you to read the content of the issue.

The authors, scientific editors and University of Social Sciences Publishing House want to thank to the reviewers, whose valuable comments in the process of reviewing contributed a lot to give the definitive form of this issue.

Iwona Gawryś

University of Social Sciences

## Shareholding Structure and Dividend Policy as Exemplified by the Stock-listed Industrial Companies

### **Abstract:**

This article is aimed at evaluating the influence of the forms of controlling stock-listed companies upon the decisions being taken in regard of the distribution of profits and the payout of dividends in the unstable macro-economic environment. The form of the ownership supervision reflects the relations between shareholders and managers of the company. The conflicts resulting from the separation of ownership and management of a company concern, among others, the dividend payout. The dividend constitutes a shareholder's reward for rendering his capital available to the company, while for a company it is a cost in the form of the capital's reduction and the limitation of investing abilities. Whereas the macro-economic environment influences the financial standing of companies and their profits, which are then used for paying out dividends, and simultaneously defines the investment needs of companies. A hypothesis can be put forward that the economic slowdown limits the access to attractive investment projects, which results in companies being interested in the payout of relatively high dividends. This hypothesis is verifiable on the ground of the decisions taken in regard of the distribution of the profit made by the stock-listed companies of the processing industry between 2007 and 2012.

**Key words:** ownership supervision, dividend, economic downturn, dividend payout strategies.

## **Introduction**

The essence of the investment clearly indicates the shareholders' expectation of profits in return for investing their equity. It applies to the purchase of shares of the stock-listed companies as well. The entities that invest equity in the purchase of companies become their shareholders. If the investment is of a long-term nature, the only reward for the shareholder is the dividend. However, the company's decision concerning the dividend payout is conditioned by numerous factors. Among others, these factors include: separation of ownership and management of a company as well as the macro-economic environment in which the company exists.

The separation of ownership and management of a company results in the possible eruption of conflicts between shareholders and managers. These conflicts also apply to the issue of distributing the profit and the related dividend payout. The dividend payout is a benefit for the shareholder but not for the company, for which it constitutes an expense, to the detriment of its capital. The managers might prefer to hold the profit in the company for investment purposes. The shareholding structure is one of the control mechanisms for it reflects the shareholders' ability to interfere in the behavior of the management. By virtue of the shareholding structure, it can be determined who exercises control over the company – the strategic investor (in concentrated shareholding) or the managers (in scattered shareholding).

In turn, the economic conditions of running a company influence its financial results, including the profits that are further allocated to the dividend payout, and define the demand for investments that are undertaken by the company. Recently, the Polish economy has slowed down due to the global financial crisis. This fact is undoubtedly a determinant of dividend-related decisions.

Having allowed for the above, the aim of this article is the evaluation of the influence of the forms of control exercised over stock-listed companies upon the decisions being taken in regard of the distribution of profits and the payout of dividends in the unstable macro-economic environment. While formulating the article's aim, it has been hypothesized that the economic slowdown reduces the number of attractive investment projects available to the companies, which results in the fact that the companies prefer to pay out relatively high dividends. The article's aim was attained and the hypothesis was verified on the ground of the decisions taken in regard of the distribution of the profit made by the stock-listed companies of the processing industry between 2007 and 2013.



**Shareholding structure in a joint-stock company**

The joint-stock company is regarded as the most characteristic organizational and legal frame of business activity in the market economy. One of the fundamental attributes of joint-stock companies is the separation of ownership and management. The creation and development of international corporations, the growth of capital markets and the fragmentation of shareholding accompanied the emergence of a new social layer of professional managers who are trained to run companies. The managers are authorized by the owners to make decisions in relation to current issues as well as strategic decisions concerning the functioning of the company. Their task is to ensure the company not only survives but also keeps developing. The consequence of separating the management and ownership is the risk of sparking clashes of interests between the managers and the shareholders. Within that background, the issue of supervising the realization of a fundamental purpose of a company, i.e. the maximization of return from the investment made by the capital owners, emerges. This issue is widely presented in literature under the notion of corporate supervision.

The main purpose of the corporate supervision is the reduction of conflicts between the capital suppliers and the managing personnel of the company, which is responsible for multiplying that capital. The shareholding structure provides a control mechanism to be executed upon the managers by the shareholders. It expresses the shareholders' ability to interfere in the behavior of the managing personnel. The shareholding structure is understood as the profile of the amount of shares concentrated in a particular group of shareholders. The shareholding structure should be considered as [Hamrol, Ochocki 2008, p. 288]:

- the concentration of ownership, i.e. the existence of majority shareholders and the scattered shareholding;
- the presence of specified types of shareholders, in particular the institutional investors and the ownership share of the managing personnel.

In both cases, it is related to the potential shareholders' ability to interfere in the company's activity and supervise the behavior of the managers. The ability to supervise is realized through the supervisory board and, to a largest degree, by means of taking active part in the shareholders' assemblies. Generally, there are two basic models of supervision: internal and external [Postrach 2000, p. 54].

The internal supervision is possible if there is one or just a few investors that own large blocks of shares. In such a situation, the supervision has a direct nature and the discrepancy between the interests of shareholders and managers is relatively small. The managers have more freedom in making de-

cisions concerning the realization of long-term goals. The realization of long-term goals is usually a cause of a short-term deterioration of financial results and a decrease in the market rate. However, it is not a reason for changing the management. The company is also less susceptible to hostile takeovers, especially for the reason that the strategic investors are usually not interested in selling their shares.

In case of the external supervision, which is characterized by the scattered ownership, the task of overseeing the company is more difficult. A shareholder who owns an insignificant amount of shares is not able to efficiently realize his plans. This issue intensifies even more when individual shareholders have different opinions on the investment's length, which translates into the discrepancy of preferences concerning the distribution of profit and the dividend payout. In this case, the ability to pay out dividends constitutes one of the most important criteria for the evaluation of the management from the shareholders' perspective. At the same time, the systematically paid-out dividends prevent rapid changes in the ownership structure. Dividends can be paid out only if the company generates profit, i.e. more attention is paid to the current financial standing than to the realization of long-term goals.

The shareholding structure, especially with reference to stock-listed public companies, should be regarded also in terms of dynamic categories, as it is reflected by the changes of ownership relations. The shares are usually purchased by investors for the purpose of building or reinforcing their market position or putting spare funds to appropriate use. The first type of an investor is known as a strategic investor or an industry investor. While purchasing shares, he is interested in majority shareholding, which brings along a large investment risk. The other type of an investor is described as a financial investor. Such an investor purchases shares of several companies with the intention of selling them after some time (speculative investment). The financial investor involves smaller funds in respective companies and thus diversifies his investment portfolio, reducing the risk. Both in case of strategic investors and the financial ones.

If we compare various systems of supervision to be exercised over a company, different types of investors and additionally allow for the fact that both legal entities (corporations) and natural persons (individuals) can become market investors, it becomes possible to indicate specific groups of companies on the basis of the shareholding structure's analysis. Within the community of stock-listed companies (representing the processing industry) that is analyzed in the empirical part of this article, three groups of companies controlled by strategic investors are distinguished (domestic corporations, foreign corpora-

tions and natural persons/individuals), a group of four companies, in case of which the controlling interest is owned by the Treasury or government-representing institutions, a community of companies that have financial investors or managing firms as well as a community of companies, in case of which the controlling interest is owned by a group of individuals. The remaining companies (almost a fourth of their total number) is characterized by the structure of scattered shareholding. Below you can find the overview of companies with different shareholding structures, with the acronyms employed in the empirical part of this article:

- Companies controlled by the domestic strategic investor (ISK),
- Companies controlled by the foreign strategic investor (ISZ),
- Companies controlled by the individual strategic investor (IOF),
- Companies controlled by the financial investors and managing firms (IFZ),
- Companies with shares owned by the Treasury/Industrial Development Agency (SKP),
- Companies with the controlling interest owned by a group of individuals (GOF),
- Companies with scattered shareholding (ARO).

The classification of companies was based on the following principles:

- the strategic investor is an entity that owns a block of shares giving it more than 50% of votes during general assemblies of shareholders or a controlling stake giving it more than 33% of votes if the large block of shares is owned by another entity related to the dominant entity through capital;
- if no shareholder owns more than 20% of votes during general assemblies of shareholders, then the company is classified as a company with scattered shareholding;
- in other cases, they are regarded as controlled by a group of individuals or financial institutions (managing firms);
- the companies with shares owned by the Treasury form a separate class.

On the ground of the presented classification of companies, the dividend preferences of various groups of investors are assessed in the empirical part of this article.

### **Dividend policy in a public company**

One of the strategic fields for making financial decisions in a public company is the settlement of the net financial result and the related distribution of the generated profit. The net profit is allocated for dividends, the social fund and

the bonus fund as well as the profit shares for members of the board and the supervisory board. The companies are also obliged to hold the profit in the form of write-offs for the supplementary capital and possible write-offs for the reserve capital. The company can decide to use its profit to redeem the shares or increase the initial capital. From the point of view that remains within our interest, the crucial information concerns the amount of profit that is being allocated for paying out dividends. The decisions on that matter are not only important to the current shareholders but also the prospective buyers of the company's shares. Moreover, they have influence over the share prices. The dividend policy is the choice between the best interest of the company and its capital needs and the individual expectations of its owners and prospective investors [Łukasik 2004, p. 147]. For this reason, the decision problem related to the dividend payout is described in literature as the so-called dividend puzzle, which underlines the role of three forces that influence dividend policies: managers, shareholders and prospective investors, whose interests are competing [Wypych 2007, p. 192].

Dividends constitute the only method for benefiting from proprietary rights to be applied by the long-term investors, including the strategic investors. However, public companies are not legally obliged to share their profit with the shareholders and it is the general assembly of shareholders that decides on the distribution of the profit. In case of lack of attractive investments projects, the only reasonable solution is the decision to pay out the generated surplus in the form of dividends [Zarzecki 1999, p. 181]. The abandonment of the dividend payout or the low amount of the paid-out dividends is justified only if the company's management has prepared a set of investment projects, the realization of which will result in the increase of revenue and dividend payout amounts in the future.

Thus, in case of the decision to abandon the dividend payout, the company's management needs to convince the shareholders that they will benefit from that decision, after all. The shareholders' benefits will result from at least three elements [Sierpińska 1999, p. 12]:

- the reinvestment of the held profit increases the company's ability to generate profit in the future;
- by obtaining the leverage capital, the company avoids the need to incur a debt so its financial obligations do not increase, leading to the improvement of the capital's structure;
- by taking the decision to abandon the plan to obtain the leverage capital and instead issue new shares, the profit per share will at least maintain its previous value or even increase.

The opinions on the validity of the distribution of the company's net profit and the dividend payout remain the individual preferences of investors (shareholders). The investors that do not intend to sell their shares in the nearest future are interested in the dividend payout. Whereas the investors that treat their shares as long-term investments will accept the decisions to reinvest the company's profit in various investment projects, which will have visible results after some time but will cause the increase in the market value of the shares. Through the employment of the policy of high or low dividends, the company meets the expectations of only one group of investors (the so-called magnetism of profits or dividends) [Duraj 1996, p. 2020]. Such an expression of the dividend policy optimization issue is considered from the point of view of the realization of the company's main goal as presented at the current shareholders' end.

The dividend policy should be contemplated in the context of its relation to the capital market, as well. While distributing the profit and paying out dividends, the prospective buyers of the company's shares should also be accounted for. The positive picture of the company as a profit-generating entity contributes to the creation of the image showing a stable and reliable company that takes care of its investors [Wypych 2007, p. 193]. The transparent dividend policy enables a market investor to foresee the revenue from dividends with a bigger probability than in case of the profit from changing share values. In the economic literature, the issue of the informational dividend contents is considered from the angle of the information asymmetry theory [Łukasik 2004, p. 147]. It concerns, among others, the fact the data related to many fields of company's activities is not revealed and the paid-put dividends are treated as the main source of information about the economic standing of the company. Some investors interpret the payout of high dividends as the proof of limited development perspectives of the company. Whereas the decision to abandon the dividend payout or the low amount of the paid-out dividends can be read as the signal of a bad and unstable economic standing of the company.

### **Dividend payout strategies**

The decisions concerning the distribution of the profit are taken by the general assembly of shareholders on the ground of the proposition submitted by the company's management. The publicly announced decision specifies not only the total amount of dividends but also the amount of the dividend per share, the dividend record date and the dividend payout date. The amount allocated for distribution among the shareholders cannot exceed the sum of the profit generated in the last trading year, the undistributed profit from previous years

and the amounts transferred from supplementary and reserve capitals that can be used for the purpose of paying out dividends. This amount should be reduced by losses carried forward, own shares and parts of the profit that should be allocated for supplementary and reserve capitals, in accord with the law or the statute [Act 2000, art. 348].

The results of numerous empirical studies indicate that decisions to pay out dividends are made as part of the specific strategies realized by the companies. The dividend payout strategies (also described as models) that make the most appearances in the literature include: strategy of a stable dividend amount, strategy of a stable dividend payout ratio and residual (surplus) strategy of a dividend payout. Moreover, the strategy of a 100 percent dividend payout ratio and the strategy of a zero dividend payout ratio are also mentioned [Sierpińska 1999, p. 95, Duraj 2002, p. 93]. It means that the character of the realized strategy can be specified on the basis of the amount of profit per dividend and the amount of dividend per dividend. The two latter dividends are treated as extreme values. For the most part, it applies to the strategy of a 100 percent dividend payout ratio, which is maintainable only for short periods. Let us briefly characterize only those situations when the companies allocate parts of the generated profit for dividends.

### **Strategy of a stable dividend payout ratio**

The stable dividend payout ratio policy consists in the maintenance of a moderately steady level of the dividend payout index, thus a specified percentage of the overall net profit that is allocated for paying out dividends. The concept of the stable dividend payout ratio policy is a close relation between dividends and the net financial result of the company. Therefore, the dividend amount changes along with the changes of the profit level so it's likely to undergo considerable fluctuations [Gajka, Walińska 2000, p. 291]. Shareholders benefit from the direct participation in the increased annual profit. This benefit becomes a drawback during periods of the decreased profit [Sierpińska 1999, p. 99]. Fluctuations of the dividend payout amount are not always perceived in a positive light by the shareholders. If the companies decide to pay out dividends with the maintenance of a constant ratio to the generated profit, it is usually done by defining a long-term target payout index. In the short term, the companies attempt to maintain a steady payout amount. It can be achieved by investing the undivided profit in securities or creating reserves with the purpose of allocating them for dividends in case the economic condition of the company deteriorates. In practice, the full stability of the dividend payout is difficult to maintain. Slight fluctuations or the upward tendency for

the dividend payout ratio can be observed, in general. In such case, it is advisable to employ the following term – stable or increasing dividend payout ratio.

### **Strategy of a stable dividend amount**

The concept of the strategy of a stable dividend amount is the provision of information about the revenue's amount and stability to be expected by the shareholders. The managers are convinced that by avoiding the reduction of dividends the (potential) shareholders receive a positive signal that proves a good financial standing of the company. Many stock market investors use dividends for the purpose of financing their current consumption. If the company decided to reduce dividends, they would be forced to sell some of their shares in order to receive cash. On the other hand, although maintaining a steady dividend payout amount, regardless of the profitability, is quite attractive to the shareholders, it might prove difficult to become accepted by the company. The negative aspects of the stable dividend amount policy include the necessity to postpone the realization of some investments or to obtain additional capital (equity or debt capital). As a consequence, the value of profit per share will decrease in the future [Sierpińska 1999, p. 97]. Therefore, the steady dividend amount in a company is usually calculated on the ground of a long-term profit distribution scheme, while the deviations from these values are observed occasionally when it becomes impossible to maintain the previous dividend amount or it will be attainable in the future. The stable dividend amount policy can be altered by the employment of the inflation index. Such measures are justified by the necessity to maintain real value of the dividend payout, not only nominal.

### **Residual strategy of a dividend payout**

The notion of the residual (surplus) dividend policy is the allocation of the profit, which cannot be efficiently reinvested in the company, for dividends. The above-mentioned amount is calculated by means of specifying the required capital structure and the need for the capital related to new investments [Sierpińska 1999, p. 105]. This type of policy is characterized by the fact that the developing companies do not pay out dividends or the payout amounts are low, while the mature companies, which have smaller capital needs, tend to pay out higher dividends. By deciding to employ this dividend policy, the companies do not define target payout indices since they depend on the amount of profit and the investment needs [Brigham 2005, s. 204].



**Dividend payout in practice as exemplified in the stock-listed industrial companies**

The object of the research is comprised of 102 stock-listed companies from the processing industry. The analysis encompasses the period of 2008 – 2013 which is regarded as the economic slowdown. One of the consequences of the destabilization of the market resulting from the global financial crisis was the reduction of attractive investment projects. In the light of the presented reasoning, it should have been expected that the companies would be more willing to assign the generated profits for paying out dividends. It is reflected in the hypothesis that has been formulated in the introduction. Thus, the research is supposed to prove or refute the hypothesis. The dynamically depicted nature of the dividend payout in the analyzed group of companies constitutes a starting point of this research. Further parts of the analysis include only those companies that decided to pay out dividends in the period between 2008 and 2013 (deferred profit for the period of 2007–2012). Since some companies paid out dividends only occasionally, the additional group of companies that paid out dividends on a regular basis has been additionally created. In order to become classified into this group, the company must have paid out dividends at least four times in the period between 2008 and 2013. The analysis of dividends in the companies that paid them out on a regular basis enabled the classification by their dividend preferences (strategies).

On the basis of the information presented in Table 1, the influence of economic conditions over the dividend-related decisions is clearly observable. The economic slowdown did not contribute to the weakening of financial standing of the companies that have been paying out dividends. On the contrary, the increase in the net profit for the companies in general has been observed since 2011. In 2012, the net financial result decreased in comparison to the previous year. The consequence of the deterioration of macroeconomic conditions is, on the other hand, the limited access to attractive investment projects. In consequence, the companies became more interested in paying out dividends.



**Table 1. Companies that paid out dividends between 2008 and 2013<sup>a/</sup>**

Details	2008	2009	2010	2011	2012	2013
Number of companies that paid out dividends	23	26	32	38	40	47
Share of the companies that paid out dividends (%)	22,6	25,5	31,4	37,3	39,2	46,1
Net profit of the companies that paid out dividends (million in PLN)	1343,7	1294,5	1437,3	2084,2	2432,7	1855,2
Value of companies that paid out dividends (million in PLN)	566,1	934,4	1130,4	1425,3	2030,6	1725,7
Dividends in relation to net profit	0,421	0,722	0,787	0,683	0,835	0,930
Number of companies that paid out dividends on a regular basis <sup>a/</sup>	27					
Share of the companies that paid out dividends on a regular basis (%)	26.5					

a/ Dividends paid out on the ground of the decision to distribute the 2007–2012 net profit

b/ At least four times during the analyzed period.

Source: own work based on financial statements of companies and decisions to distribute their net profit.

The number of companies that paid out dividends in respective years doubled from 23 in 2008 to 47 in 2013. In total, 56 companies (55% of the entire analyzed group) decided to pay out dividends at least twice in the period between 2008 and 2013. Dividends were regularly paid out in 27 companies (26% of the entire analyzed group) and in almost 50% of the companies that decided to pay out dividends at least once. The amount of dividends being paid out increased to a larger degree than the net profit by growing 3,5 times (“only” 80% in case of the net profit) between 2008 and 2012. In consequence, the dividend payout rate achieved 0.93, meaning that almost the entire profit generated in 2012 was assigned for dividends. This fact is obviously related to the group of companies that paid out dividends.

On the ground of the data from Table 2, the differences between the amounts of dividend payouts in particular groups of companies can be assumed.

**Table 2. Dividend payout depending on the form of ownership supervision**

Shareholders	Companies				Dividend	Net profit	Dividend / Net profit
	paying out dividends		paying out dividends on a regular basis				
	L	%	L	%	million in PLN		
ISK	9	69,2	3	23,1	625,4	1 179,6	0,530
ISZ	6	60,0	5	50,0	2.977,7	3 374,5	0,882
IOF	12	40,0	4	13,3	2.629,7	3 125,8	0,841
SKP	4	100,0	1	25,0	348,2	843,6	0,413
IFZ	9	69,2	4	30,7	1 100,9	1 026,7	1,072
GOF	8	80,0	4	40,0	373,8	296,8	1,259
ARO	8	36,4	6	27,3	428,1	600,6	0,713
Total	56	54,9	27	26,4	8 483,7	10 447,6	0,812

Source: as in Table 1.

The companies controlled by foreign investors paid out dividends relatively frequently, while the companies with the scattered shareholding and those with individual strategic investors did so on rare occasions. The companies controlled by groups of individuals and those controlled by financial investors and managing firms allocated the biggest parts of their profit for dividends. In both cases, the dividend payout index for the entire analyzed period exceeded 1.0, meaning that the amount of dividends that were paid out surpassed the value of the generated profit (dividends were paid out with the employment of resources that had been held in previous years). While analyzing this group of companies, it was observed that dividends were paid out even if the company suffered a loss, such as KOFOLA (having done so twice with the amount of the paid-out dividends being 12 times higher than its positive financial result) and WIELTON. Some companies with the scattered shareholding also decid-

ed to pay out dividends regardless of the recorded loss (4 instances). In total, 39 instances of paying out the dividend with the employment of held resources (i.e. the dividend exceeded the amount of net profit) were observed. Such decisions were most frequently made (four times in six years) in the following companies: ŻYWIEC, KOFOLA, DECORA, ELEKTROTIM, and three times in: INTROL, TERESA, NOVITA. The relatively small profit share was allocated for dividends by the companies controlled by the Treasury (41% of their profit; with RAFAMET being the only company to pay out dividends on a yearly basis) and the companies with domestic strategic investors (53% of their profit).

Having allowed for the information about the dividend amounts per 1 share and the dividend payout rate (dividend to profit ratio), the analyzed companies were grouped by the type of realized dividend payout strategies. The companies that suspended the dividend payout for the entire period between 2008 and 2013 (46) and the companies that paid out dividends occasionally, i.e. twice at the most (19), are not included in the classification. The overview of companies grouped by the type of realized dividend payout strategies is shown in Table 3.

**Table 3. Realization of various types of dividend payout strategies between 2007 and 2013 by the stock-listed industrial companies**

Dividend payout strategy type		
Stable or increasing dividend amount per 1 share	Residual dividend payout strategy	Stable or increasing dividend payout rate
Aplisens	Indykpol	Apator
Śnieżka	Fasing	Dębica
Relpol	Żywiec	Kruszwica
Decora	Synthos	Grajewo
Es-System	Rafamet	Lena
Introl	Elektrobudowa	
Teresa	Sanok	
Kęty	Kofola	
Novita	Hydrotor	
Wawel	Elektrotim	
Wielton	Sonel	
	Energoinstal	
	Mennica	
	ZPUE	
	Nowa Gala	

Source: as in Table 1.

Most companies (15) realized the residual dividend payout strategy. In the period of economic downturn, such a situation appears obvious. The number of companies that realize the strategy of stable or increasing dividend amount per one share is also relatively high (11). Only five companies prefer to employ the strategy of maintaining a stable or increasing dividend payout rate.

### Summary

The research proved the formulated hypothesis. In the period of economic slowdown, the number of companies that paid out dividends kept increasing

systematically, while an upward tendency in terms of the dividend share in the net profit was also observable. The relatively large number of companies paid out dividends that exceeded the amount of profit generated in the preceding year through the employment of resources that had been held in previous years. The research revealed the fact the companies tend to realize various dividend payout strategies. In most cases, it is the residual dividend payout strategy, whereas the dividend payout rate is rarely used as a criterion in the decision-making process. Having allowed for the form of ownership supervision, it was observed that the companies controlled by foreign investors paid out dividends comparatively frequently, while the companies with the scattered shareholding and those with individual strategic investors did so on rare occasions. The companies controlled by groups of individuals and those controlled by financial investors and managing firms allocated the biggest parts of their profit for dividends.

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## Casino Taxation in a Normative and Economic Context: the Case of Poland

### Abstract:

The aim of this article is twofold. First, it provides an overview of theoretical background of casino taxation. Second, it analyses the provisions of the Act regulating casino taxation in Poland and evaluates the consequences of the new Gambling Law in force since 2010. The first section of it discusses motives, outcomes and forms of casino taxation, taking into account inter alia the assumptions of optimal tax theory. It then deals with Polish regulations concerning the organisation of gambling in casinos and gambling tax design. The last section of the article analyses the scale of operation of Polish casinos, their revenues and the tax due on gambling activities.

**Key words:** casino, taxing externalities, excise duties, commercial gambling.

### Introduction

Commercial gambling has been a rapidly growing industry in the world economy over the last three decades. According to the report issued by Global Industry Analysts in 2011 casino gaming represents the largest and the most lucrative segment of the commercial gambling market [*MCP-1050: Casinos*, online]. It is estimated that casinos make up one third of the gambling market's gross turnover, which amounted to 305 billion euros in 2013. Moreover, in the years 2006–2013 the global casino gaming revenue increased by nearly 60%. Out of the 3,547 legally operated casinos throughout the world in 2011 – 1,623 offered their services in North America, 682 – in Western Europe and 479 – in Eastern Europe.

Gambling is more or less socially acceptable depending on the cultural environment. Moral concerns are likely to arise because gambling has some negative effects on society. Above all even irregular gambling may lead to addiction (problem gambling or even pathological gambling). Secondly it is associated with an increased crime rate. Several studies have shown that arrest rates for criminal offences are significantly higher for gamblers than for non-gamblers [Emshoff 2008, pp. 2–6]. On the other hand the gambling industry is proven to benefit local economies [Mallach 2010, pp. 11–19]. For these reasons governments impose restrictions on gambling and decide about the scale and form of the gambling industry. In addition gambling products tend to be subject to quite high explicit and implicit tax rates approximating those levied on tobacco and alcohol the basic purpose of which is to discourage forms of consumption that are not favoured by public opinion [Cnossen 2005, p. 601; Clotfelter 2005, p. 85].

Commercial gambling is also subject to numerous limitations in Poland. Since 2010 a new law has regulated licensing procedures and the taxation of the gambling market. Some of the regulations are claimed to have a *discriminatory character* and infringe the European Union law. *As a result* on November 20th, 2013 an official request for information on the national legislation restricting the supply of gambling services was sent by the European Commission to the Polish government.

The article is devoted to casino taxation in Poland. It attempts to answer three questions:

- what are the theoretical concepts of casino taxation?
- to what an extent are these concepts taken into account while designing tax policy?
- what are the consequences of the new Gambling Law in Poland in force since 2010?

As the Polish literature on the gambling tax is very scarce the theoretical part of the article is based on the literature analyzing the functioning of the foreign gambling markets. The second part of the article reviews the current restrictions imposed in Poland on gambling operators, categories of levies paid by them, the regulations defining the gambling tax base and concerning tax rates and gambling taxpayers' obligations. The last part contains an analysis of statistical data of the Ministry of Finance concerning the number of casino operators, their revenue and the tax paid by entities organizing gambling games and mutual bets in Poland before and after the introduction of the new Gambling law.

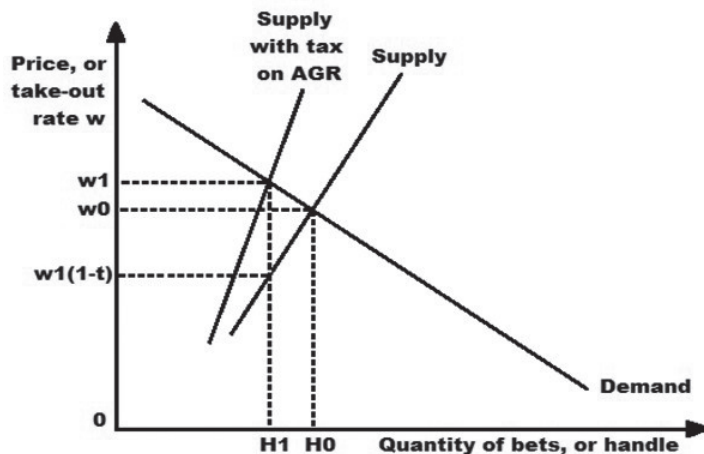


### Concepts of Casino Taxation

Although gambling taxes are comparable in structure to other common excise duties (e.g. excise duties imposed on alcohol or tobacco) gambling operators tend to be taxed at rates over and above those of typical businesses offering excise liable goods [Philander 2013, p. 17]. Moreover there are some distinct features of the gambling sector that may explain the need for a specific design of gambling tax. D. Forrest indicates three of these features [2008, pp. 542–543]:

- there is no natural unit of gambling services consumption equivalent to a unit of alcohol or single cigarette (the tax base may be hardly defined in physical quantities as counting the number of bets placed in a period has little meaning if the bets are different in value),
- price is conceptually difficult to define as whilst gambling the player is willing to lose a certain amount of money in return for excitement or diversion; the win/loss varies from occasion to occasion and is known *ex post*,
- in the case of drinking and smoking social costs are correlated with levels of physical consumption; although to some extent the scale of social problems arising from dysfunctional gambling may be connected with the time spent on gambling, most harm that comes from gambling is related to financial pressure on the household itself; as a result taxation that reflects social cost should be based on the impact on the player's expenditure rather than on the quantity.

Figure 1. Market Analysis of a Casino Game



Source: Anderson 2005, p. 316.

Due to the diversity of commercial gambling governments apply various forms of taxation. In the majority of jurisdictions imposing gambling taxes, casinos are taxed on gross receipts collected by them on all the forms of games that they offer. Some countries may in addition levy taxes on slot machines and other electronic gaming machines located in casinos – in most cases as a per-machine license fee [Clotfelter 2005, p. 90]. J. E. Anderson based on his study on the forms of taxes and fees applied to casinos in the United States describes three types of casino levies [2005, p. 306]:

- wagering tax – imposed, depending on the state, on adjusted gross receipts (AGR) or gross gambling receipts minus payouts for prizes,
- admission tax – primarily applied in riverboat casino states; currently varying with patronage, size of the facility offering gambling services and the state or local government unit imposing the tax,
- casino fees – in most cases licensing fees imposed by states or local government units (in certain cases taking a form of a tax on casino value).

In economic theory gambling taxes need to be adequately designed for economic welfare maximization or internalization of negative externalities. The fulfillment of the first of these aims is the subject of optimal tax theory. The main question posed by this theory is how best to raise revenues in a distorted economy [Boadway 2012, p. 7]. In such an economy government

possesses only imperfect information and there is a need to redistribute the income through taxation. In the presence of distortions the optimal outcome is the second-best, that is inferior to the first-best, taking place in a non-distorted economy. The theory assumes that any tax other than a lump-sum tax is the second-best solution because it causes significant welfare loss (deadweight loss) [Stiglitz 2000, p. 550].

The analysis of the economic consequences of casino taxes is illustrated in Figure 1. The horizontal axis presents the total quantity of bets defined as a handle ( $H$ ), the vertical – the price or in other words the take out rate ( $w$ ). Due to the fact that the total prizes paid to winners ( $P$ ) can be defined as the take out rate equals  $P = wH$ . As the price of gambling is inversely related to the prize amount it can be expected that gamblers will gamble more at lower relative prices. In figure 1 the supply curve is relatively inelastic because governments usually limit and regulate the number and size of casinos. The imposition of a tax on adjusted gross receipts causes an upward shift of the supply curve which results in a higher equilibrium take out rate and lower – handle. The tax increases the price from  $w_0$  to  $w_1$  and lowers the price received by the casino from  $w_0$  to  $w_1(1-t)$ . The gambler will in the situation demonstrated here bears the tax burden of  $(w_1 - w_0)H_1$  and the casino –  $[w_0 - w_1(1-t)]H_1$ . The economic agent with the more elastic behaviour will bear the greater share of the tax burden. With regulatory restrictions imposed on casinos their operators will bear a larger share of the tax burden due to the relatively inelastic supply. Deadweight loss generated by AGT applied to casino in Figure 1 is the triangle with height ( $t$ ) and width ( $H_0 - H_1$ ) [Anderson 2005, p. 317].

One of the first authors to discuss the problem of optimal commodity tax rate structure was F. P. Ramsey [1927, p. 58-59]. The rule suggested by this author requires the imposition of tax rates that are inversely proportional to the compensated elasticities of demand for the taxed commodities if they are produced by several different methods or in several different places between which there is no mobility of resources. If there is a correlation amongst the demand for commodities the appropriate tax policy of the gambling market is more complicated. K. S. Philander indicates that if gambling is, for instance, strongly tied to the tourism industry the application of a high tax on casinos may adversely affect tax revenue generated from tourism industry [2012, p. 13].

Another recommendation for the policy ensuring optimal gambling market taxation can be drawn from the Corlett-Hague rule. It implies that the commodity which is a stronger complement (or weaker substitute) of leisure than the other should be taxed more heavily [Zee 2002, p. 74]. According to

this rule casino gaming could be a potential candidate for relatively higher tax rates (for instance higher than those imposed on lotteries). Such rates may correct the distortions in the customer choice between work and leisure hours [Forrest 2008, p. 553].

Excise taxes are often rationalized as charges for the external costs that consumers or producers of excisable products impose on others. This concept is known as Pigouvian prescription [Cnossen 2005, p. 597]. Due to the fact that casinos may cause social costs that occur as a result of pathological gambling corrective taxation is recommended in economic literature to reduce these costs [Anderson 2013, p. 29]. As the measure of externalities is a function of the level of problem gambling higher tax rates should be applied to those forms of gambling that have more problem gamblers, such as poker [Philander 2013, p. 21].

### **Casino Taxation in Poland – a Review of the Current Regulations**

The taxing of casinos in Poland has been regulated in the Polish Gambling Law of 19th November 2009, which entered into force on 1st January 2010 [*Ustawa z dnia 19 listopada 2009 r.*]. This Law introduced a number of restrictions on gambling operators. For example, the Law does not envisage extending permits to organize games in slot machine salons which had been issued before the Law entered into force. Therefore at present casinos are the only entities allowed to organize such games. Moreover the legislator does not allow the organisation of video lotteries. The Law also changed the rules for the organization of poker games in casinos. According to the new regulations casinos may only organize poker tournaments.

The provisions of the Law regulate the organisation of gambling games, applying for licenses and permits, paying fees and taxes, and reporting, as well as sanctions for non-compliance. Gambling games may only be organized in accordance with the rules specified under the Law. The organisation of such games without a valid licence or permit, as well as not reporting or registering a slot machine, or participating in a game organised without a valid licence or permit, is subject to a fine amounting to 100% of the income from the (won) game. Also organizing machine games outside casinos is penalised with a fine of 12,000 PLN per machine.

Article 4 of the Law includes the definition of a casino. It is a place where cylindrical games, card games, dice games and slot machine games are organised and played in compliance with the approved rules and regulations. The definition also includes a requirement concerning the minimum number of cylindrical games and card games a casino must offer, i.e. 4, and the minimum number of installed slot machines, i.e. 5 to 70.

In Poland there may be only one casino per 250 thousand citizens. However the total number of casinos in a province may not exceed 1 per round number of 650 thousand inhabitants. Gambling casinos may also operate on Polish ships and passenger ferries during cruises, but they may not start their activity earlier than 30 minutes after departure from a port and may not continue longer than until 30 minutes before entering a port.

There are two categories of levies imposed on casinos:

- fees, e.g. for a licence or permit to organise a poker tournament,
- gambling tax (also called game tax).

The fee for a licence equals 32 000% of the base amount which is the equivalent of a monthly payment in the enterprise sector for a given calendar year, excluding payments from profit, in the second quarter of the previous year, announced by the President of the Central Statistical Office (GUS) in its Official Journal. As for 2014 the base amount equals 3,785.38 PLN. A fee for a permit to organise a poker tournament equals 100% of the base amount. Apart from that fees are also charged for issuing professional certificates and in the case of examinations for certain positions and functions which involve supervising gambling.

The lottery and gambling tax is imposed on entities operating in the lottery and gambling market, arranging games within the state monopoly and on participants in poker tournaments. The tax liability arises on the date of commencement of the taxable activity and, in the case of participants in poker tournaments, at the moment of entering a tournament. If it is impossible to determine the date on which the tax liability arose, it is assumed that it occurred on the date when an authorised tax or fiscal body registered the taxable activity or the organisation of the taxable event.

The game tax base is as follows:

- for cylindrical games, dice games and card games, with the exception of the poker game organized as a poker tournament – the amount being the difference between the total cash payments made in exchange for chips at the counter and at the gaming table and the total amounts paid in cash for the chips returned,
- for a poker game organized as a poker tournament – the amount of the prizes less the tournament fee,
- for games on slot machines – the amount being the difference between the amount obtained from the exchange of tokens or paid at the counter and credited in the slot machine memory, or paid into the slot machine and the total of game participants' prizes.

The game tax rates are as follows:

- for games on slot machines, cylindrical games, dice games and card games, with the exception of a poker game organized as a poker tournament – 50% of the tax base,
- for poker games organized as a poker tournaments – 25% of the tax base.

The gambling tax is paid to the account of a competent customs' chambers. The tax payment deadline is the tenth day of the month following the month of the tax settlement. One exception is the tax paid by entities organising poker tournaments. In this case the tax must be paid by the 20<sup>th</sup> day of the month following the month which the tax settlement concerns. The proper tax authority is the customs' chamber with competency for the location of a given casino.

The legislator imposed on casinos a number of *recordkeeping* and reporting *requirements*. Casinos are obliged to maintain books on the sale of chips/tokens and records of cash flows, books registering the operations of slot machines, the records for the gaming tax base and tax due calculation, as well as a registers of tips. Moreover casinos are obliged to submit information concerning their operation on demand to the Minister in Charge of Public Finance and the directors of competent customs' chambers; the information may include economic and financial data breakdowns concerning their current operations and, in particular, their turnover, financial results, economic ratios and notably the headcount ratio, as well as certain statistical indicators.

### **Casinos in Poland – Scale of Operations, Profits and Tax Due on Gambling Activities**

Casinos constitute one group of several groups of entities operating on the Polish gambling market. In this market there is a state monopoly executed by the Minister in Charge of the State Treasury in the field of number games, cash lotteries and telebingo. Apart from the state, in this market entities operate also which organise mutual bets, also over the Internet, slot machine salons and salons with slot machines with low prizes.

To operate a casino in Poland a company is required to be a joint stock company or a limited liability company, have their place of registration in the country and a share capital of at least 4 million PLN [ECA's European Casino 2013, p. 76]. In 2014 there were 51 gambling casinos in Poland. In all provinces, with the sole exception of one province (Zachodniopomorskie), all the limits assigned for casinos were used (Tab. 1). The most permits were assigned to the most populated provinces (Mazowieckie and Śląskie).

**Table 1. Limits on the number of casinos and the number of casinos by province as of 26/06/2014**

Province	Population	Casino limit	Number of casinos
Dolnośląskie	2 909 997	4	4
Kujawsko-Pomorskie	2 092 564	3	3
Lubelskie	2 156 150	3	3
Lubuskie	1 021 470	1	1
Łódzkie	2 513 093	3	3
Małopolskie	3 360 581	5	5
Mazowieckie	5 316 840	8	8
Opolskie	1 004 416	1	1
Podkarpackie	2 129 294	3	3
Podlaskie	1 194 965	1	1
Pomorskie	2 295 811	3	3
Śląskie	4 599 447	7	7
Świętokrzyskie	1 268 239	1	1
Warmińsko-Mazurskie	1 446 915	2	2
Wielkopolskie	3 467 016	5	5
Zachodniopomorskie	1 718 861	2	1
<i>Provinces in total</i>	38 495 659	52	51

Source: [*Wolne lokalizacje*, online].

In 2006-2012 the number of casinos in Poland grew. The increase in the number of licences obtained to operate a casino was especially visible in 2010. The number of applications for such a licence increased several times in this year. This increased interest in running a casino business remained high also in 2011 and 2012 (Tab. 2) and was a result of the implementation of the Gambling Law which does not envisage the issuance of new licences or the renewal of existing licences for the organisation of games in slot machine salons and salons with slot machines with low prizes. A significant decrease in operations

especially concerned salons with slot machines with low prizes. Before 1st January 2009 there were 549 existing licences issued for such places; by the end of 2009 their number decreased by 106 entities. Therefore the attractiveness of casinos, as the only places where such games could be organized, increased. However the number of casinos did not grow by the number of licences issued, as only some of them were issued for new locations. Changes in the Law contributed also to the significant increase in the number of slot machines used in casinos (Fig. 2). In 2012, in comparison with the previous year, the number of slot machines in casinos doubled.

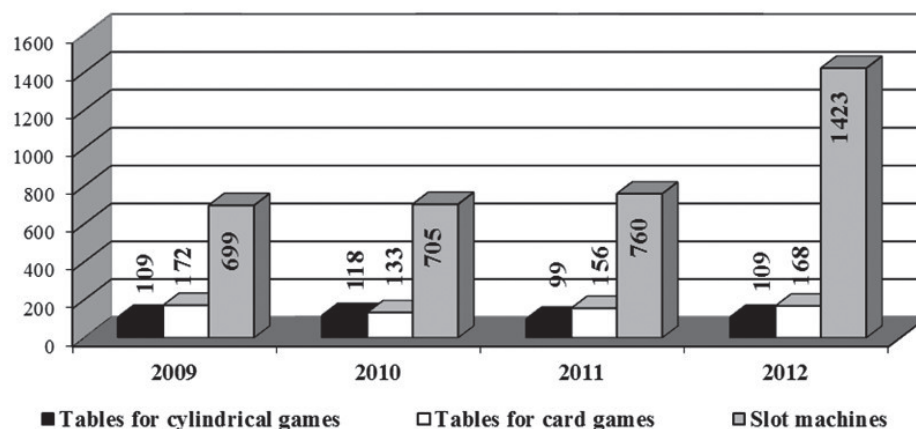
**Table 2. Casinos in Poland in the years 2006–2012**

Year	Number of casinos operating in a given year as of 31/12	Number of issued (extended) licences	Number of entities operating casinos
2006	27	5	5
2007	26	1	5
2008	27	2	5
2009	27	–	6
2010	33	13	6
2011	34	12	6
2012	45	17	9

Source: *Informacja o realizacji 2007*, pp. 5–9, *Informacja o realizacji 2008*, pp. 5–9, *Informacja o realizacji 2009*, pp. 5–9, *Informacja o realizacji 2010*, pp. 5–9, *Informacja o realizacji 2011*, p. 7, *Informacja o realizacji 2012*, p. 8, *Informacja o realizacji 2013*, p. 10.



**Figure 2. Number of gaming tables, card tables and slot machines used in casinos in the years 2009–2012**



Source: *Informacja o realizacji 2011*, p. 11, *Informacja o realizacji 2012*, p. 13, *Informacja o realizacji 2013*, p. 15.

**Table 3. Revenues of casinos in Poland in the years 2006–2012**

Year	Revenue from gambling (in thousands PLN)	Share in revenues by entities organizing gambling games and mutual bets (in %)
2006	1 089 289	13,42
2007	1 335 411	11,16
2008	1 354 230	7,87
2009	1 415 287	6,95
2010	1 260 292	7,76
2011	1 293 574	8,71
2012	1 843 646	12,90

Source: *Informacja o realizacji 2009*, p. 9, *Informacja o realizacji 2011*, pp. 11–12, *Informacja o realizacji 2013*, p. 16.

Casino operators show limited interest in organizing poker tournaments. Permits for their organisation are granted by the Minister in Charge of Public Finance. In 2010 16 permits were granted for the organization of these tournaments, in 2011 – 17, and in 2012 – 14.

Casinos have a significant share in the revenues of entities operating in the market of gambling and mutual bets (Tab. 3). In 2012 this share was higher only for lotteries monopolised by the state and slot machine salons. In 2006–2012 revenues of casinos increased by about 63.3%. The dynamics of changes in these revenues varied in different years. They increased the most, in comparison to the previous year, in 2012 (by 42.5%). The implementation of the new Gambling Law contributed to the lowering of the revenues of operators offering services in the gambling market by about 20%. The lowering of these revenues in 2010 concerned all the operators in the gambling market, with the exception of slot machine salons. The revenues of casinos dropped in 2010 by about 11%.

**Table 4. Game tax base and tax paid by casinos in Poland in the years 2006–2012**

Year	Game tax base (in thousands PLN)	Game tax (in thousands PLN)	Share in game tax paid by entities organizing gambling games and mutual bets (in %)
2006	–	99 641	10,98
2007	–	122 051	11,00
2008	–	129 707	9,04
2009	291 911	131 605	8,32
2010	260 192	127 632	8,05
2011	256 810	129 461	8,73
2012	347 827	172 244	12,49

Source: *Informacja o realizacji* 2009, p. 26, *Informacja o realizacji* 2011, pp. 11–12, *Informacja o realizacji* 2013, p. 19.

The decrease in revenues contributed to the decrease in the gaming tax paid by casinos – by about 3% in 2010 (Tab. 4). This decline was mitigated by an increase from 45% to 50% in the rate of the gaming tax imposed on casinos. The increase in the amount of the gaming tax paid by casinos to the state's budget was visible in 2012 and was related to the increase in the revenues of casinos. In the same year there was an increase in the share of the gaming tax paid by casinos in the total gaming tax paid by all the operators in the gambling and lottery market.

### **Conclusion**

Nowadays gambling monopolies are regarded as an essential part of excise duties system. They should reduce the social costs of gambling and constitute an efficient revenue raising instrument. Discouraging gambling activities and raising the additional tax revenue were among the most important motives of the introduction of the new Gambling Law by the Polish legislator.

The adoption of this Law contributed to significant changes in the market of gambling operators. In the year following its introduction there was a significant decrease in the revenues of gambling operators, including casinos. However the gradual expiration of permits for the operation of slot machine salons and salons with slot machines with low prizes increased the interest in running casinos. At the same time the number of slot machines used in casinos grew which led to the increase of casinos' revenues and the gaming tax paid by them in 2012.

The provisions of the new Law regulating the operation of casinos arouse much controversy. They are regarded as extremely strict, in particular the prohibition of playing poker unless within the framework of a poker tournament organised in a casino. The solutions criticized also include unclear regulations concerning the offering and participation in internet games. Internet gambling is, in the light of the new Law, practically illegal. However as the Law in question was adopted in violation of European Community law its provisions may not be fully effective. The criticism of the Law concerns also the fact that it does not envisage the possibility of creating Polish casinos on-line which results in Polish operators losing potential profits from internet games to operators from other countries.

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## **Fiscal Policy in European Union Countries in Time of the Economic Crisis – Attempt to Estimation**

### **Abstract:**

In this article, stability of fiscal policy and its impact on fiscal market have been analyzed. The issue appears especially important in times of the financial crisis which has affected all the European Union countries, although to a different extent. To achieve this, the author presented the aims, the tools and the aspects of financial stability to confront them with the situation that has occurred in the EU countries. To present the issue profoundly, the scientific research related to fiscal policy and its impact on financial markets were used in two opening units. In the third unit, the statistic data was cited to show the condition of the EU countries, the changes to it and the attempts aimed at improving the state of the public finance and therefore stabilizing financial markets.

**Key words:** fiscal policy, stability of fiscal policy, financial crisis.

### **Introduction**

The latest financial crisis, which began in 2008, posed some new challenges to fiscal policy. The speed of its spreading and the fluctuation of financial markets which accompanied it, caused the need to turn to fiscal policy as a tool of countercyclical policy. The aim of this article is to present stability of fiscal policy in combating financial crisis. The author described the aims of fiscal policy together with the tools which can be used to stimulate economy. Next, some conceptions of fiscal stability were presented as well as their importance for economy and financial markets. Furthermore, the author showed the effects of

the crisis on fiscal policy and the attempts to stabilize it with stimulating packages and fiscal reforms. Those are used to solve the problems of liquidity and solvency, not only to increase demand, but mainly to try to help the threatened financial sector. The question how to reconcile the weakened economic growth with the attempts to bring back stability of the public finances and financial markets, is still very much an open one.

### **The aim and the tools of financial policy**

The term „financial policy” is not univocally understood in specialist literature. The word „fiscal” has its Latin roots and in Ancient Rome meant a basket, into which the money for the emperor was collected. This limited meaning would signify that fiscal policy only stands for accumulating profits without taking into account expenditures. For this reason, the contemporary perception of fiscal policy takes a wider approach. Nowadays, the meaning embraces budgetary policy, serving social and economic policies which are responsible for managing public resources by the public sector entities and especially for processes related to accumulating public resources and distributing them [Musgrave, Musgrave 1989, p. 3].

In Polish specialist literature the terms “fiscal policy” and “budgetary policy” are synonyms [Wersalski 1997, p. 16]. Individual authors concentrate, however, on emphasizing the economic and social consequences of using fiscal instruments. N. Gajl states that fiscal policy encompasses the whole of intended economic activities taken by the government in order to do different economic tasks aided by financial instruments, mainly taxation [Gajl 1988, p. 14]. Z. Fedorowicz stresses that fiscal policy is based on a choice of sources and methods of gaining public income to achieve social and economic goals established by appropriate public institutions, therefore it is often identified with the financial policy of the state [Fedorowicz 1998, p. 11]. However, according to the definition from “Finance Lexicon” [2001, p. 221], fiscal policy means the activities of the state based on fiscal instruments (i.e. taxation, other public income, public expenses or budgetary deficit), aiming at achieving given goals.

The countries which accepted the market mechanism and the rules governing it, influence economy for two main reasons. Firstly, the forming of economic processes needs coordination and action from the state. Secondly, in a democratic system, the state has not been excused from responsibility for economic processes. Using two kinds of monetary instruments, the state can influence economy. These tools are used in two domains of economy, mainly in monetary and fiscal policies. While the monetary policy focuses on, among others, protection of the money’s value and regulating money supply, fiscal



policy deals with supplying the state with necessary income. Generally speaking, they serve global purposes i.e. economic growth, fighting unemployment, limiting the amplitude of market situation fluctuations etc. [Owsiak 2013, p. 359]. In the following section of the article the author's attention will mainly be focused on fiscal policy.

The skill of fiscal policy is to combine its basic aims (supplying the state with necessary monetary means) with simultaneously achieving important economic and social aims by the state. More precisely, fiscal policy uses three basic methods of influencing economy:

- changes in purchasing goods and services by the state;
- changes in transfer payments;
- changes in taxes.

Indirectly, the state influences the demand through changes in transfers and taxation, thus influencing consumption. Through purchasing goods and services it directly influences demand [Hall, Taylor 2010, p. 264]. Quoting after Owsiak [2013]: to achieve goals of fiscal policy in the general meaning, one can use, among others ways, taxation instruments, the unemployed benefit, expenses on restructuring economy, public expenses towards public works, budgetary deficit, public debt as well as sureties and guarantees from the state, granted the entities which take out loans. Achieving out of fiscal goals while using aforementioned goals is not easy as the state's interference is beneficial to some economic entities, but not to the others. Despite many different opinions about the issue of the state's interference into the market mechanism, the question of stability, which should be a drive for fiscal policy, does not cause divisions.

### **The conception of fiscal stability and its importance**

The meaning of fiscal stability comes down to maintaining public debt within reasonable limits. "Reasonable" here should be understood as the level which would ensure the minimal negative effects of public debt and budgetary deficit on the economy, allowing to fulfil the state's duties with regards to stabilizing the economy [Włodarczyk 2011, p. 8]. Fiscal stability should mean activities which, in the long run, will guarantee the access to financing expenses, preventing changes caused by financial difficulties and contributing to stabilizing the whole economy.

O.J. Blanchard [1990, s.11] states that we could look at fiscal policy as the inherited level of indebtedness. We shall consider fiscal policy as stable when it assures the relation between the debt and GDP heading towards the starting level. Over a long period of time, real public debt should not grow faster than the interest rates and the indicator – debt/GDP should not grow faster than

the the difference between the pace of economic growth and interest rates. The influence of Keynes' conception, which approves expansive fiscal policy, can be seen here. However, after a period of good economic situation, it appears desirable to normalize the fiscal situation of the state through stimulating the relation debt/GDP.

If fiscal policy is based on creating budgetary deficit, such activities have influence on the goods and monetary markets, which questions the possibility of achieving a long term stability. The conception of fiscal stability should be used to prevent uncontrolled growth of indebtedness, which in turn contributes to destabilisation of the economic system and financial markets, especially in the era of integration and globalisation, which enforce and intensify these processes. It is, therefore, advisable to monitor the fiscal situation of the country with the view to establishing which tendency will develop the budgetary imbalance and which will lead to its decrease [Kosterna 1995, pp. 125–127].

The question which is worth thinking over, is the issue of researching its influence on economy. O. J. Blanchard [1985] and H. Bohn [1995] focus on the general balance models which were used to research the influence of fiscal stability conceptions on the developing and applying economic policy instruments as well as economic entities' decisions. P.Burger

[2003] linked budgetary limitations of the government with the fiscal situation of remaining economic entities as well as the whole economy. To form his theory, Burger used J. Tobin's idea. Tobin thought that keeping deficits by the public sector means keeping surpluses by the non-public sector (i.e. private and foreign). As a consequence, we shall look at fiscal stability from the perspective of changes which it brings about in the financial situation of individual sectors. Balancing individual factors: households, businesses, financial sector, foreign sector as well as the whole economy, which referred to GDP enables monitoring changes in financial stability [Burger 2003, pp. 80–90].

The model described here enables us to draw interesting conclusions. P. Burger stressed that the changes in the state's fiscal policy, focused on linking the ratio debt/GDP, do not necessarily result in a tendency to get financial surpluses by the owners of assets in order to stabilise the indicator assets/GDP at the same level as before. Moreover, increased access to the capital could result in net debtors taking out new loans in other sectors and thus worsening fiscal situation. As a result, fiscal policy stability could disturb this balance and transfer this imbalance into other sectors. The latest financial crisis proved strong inter-sector interdependence between the economic entities and their financial positions, focusing mainly on joining fiscal policy with governmental public sector, overlooking non-governmental sector and general financial stability.

T.J. Sergeant and N. Wallace [1981, pp. 3–5] pointed out the issue of coordinating monetary and fiscal policies and their influence on inflation tendencies. They noticed that in economies where monetarism prevails and fiscal policy is paramount to monetary policy, focusing on restrictive monetary policy which aims at limiting inflation may, in the future, result in the necessity to loosen it up and, as a consequence, in higher inflation. Where monetary authorities are limited by the demand for treasury bonds, deficit is to be financed by seigniorage. Restrictive monetary policy means the increase in interest rates, which translates into higher debt service. If interest rates are higher than the economic growth rates, the central bank could be pressurised to loosen up monetary policy to finance the high deficit level, caused by the lack of backing in the sold bonds, which translates into inevitable growth in inflation. Recovering fiscal stability should be aimed at limiting the debt not at financing it with seigniorage. Eventually, restrictive monetary policy should bring benefits, reduce inflation, while monetary authorities should gain freedom to implement their own policies [Włodarczyk 2011, pp. 24–25].

Fiscal policy, especially an unstable one, undoubtedly has influence on the increase in taxes, which in turn limits economic growth. The costs of debt service are rising, thus worsening the fiscal and economic situation of the country. Monetarisation is an option, but that could bring about hyperinflation, or even repudiation. Only introducing stable fiscal policy could limit the height of the interest rates leading to faster economic growth and stability of financial markets [Fullwiler 2007, s. 1011].

The conception of “tax-smoothing” is important to fiscal policy. According to R.J. Barro [1979] and D. Romer [2006], deriving income from taxes is linked to raising the costs of collecting them and incorrect allocation of resources by private entities. The most desirable solution would be to use, over a long period of time, the whole tax rate against the aggregated income, which will help to determine the level of public debt in the specified periods. Thanks to stable fiscal policy, public debt will be limited and brought to a certain level. This way of conducting fiscal policy seems the most rational, also from the future generation’s perspective as they will endure that tax.

To finish reflecting on the meaning of fiscal policy, it is worth mentioning the state’s credibility on financial markets, which face high deficits. The loss of such credibility could mean not only the lack of opportunities to gain funding, but also problems with granting credits to the individual entities as well as lower influx of foreign investments [Wiernik 2007, p. 99]. One of the examples of credibility put into a trial was the latest economic crisis.

### Fiscal policy in the European Union countries during the crisis on financial markets

Most countries with a large public debt did not take advantage of the good situation before the crisis to consolidate public finances. Moreover, some countries would have to reconcile two contradictory aims. On the one hand, they need to look after the pace of the economic growth, which is slow during the crisis. On the other hand, they need to ensure the stability of public finances, as the lack of it threatens with the lack of economic growth. This is because the thriving economy can only partly soothe the budgetary and financial markets tensions in the countries with the biggest public debt growth (table 1).

**Table 1. Public debt as % of GDP in 2001–2012**

Countries/ year	2001	2004	2006	2008	2009	2010	2011	2012
<b>Belgium</b>	<b>106,5</b>	<b>94</b>	<b>87,9</b>	<b>89,2</b>	<b>95,7</b>	<b>95,7</b>	<b>98</b>	<b>99,8</b>
Bulgaria	66	37	21,6	13,7	14,6	16,2	16,3	18,5
Czech Republik	23,9	28,9	28,3	28,7	34,6	38,4	41,4	46,2
<b>Denmark</b>	<b>49,6</b>	<b>45,1</b>	<b>32,1</b>	<b>33,4</b>	<b>40,7</b>	<b>42,7</b>	<b>46,4</b>	<b>45,4</b>
<b>Germany</b>	<b>59,1</b>	<b>66,2</b>	<b>68</b>	<b>66,8</b>	<b>74,5</b>	<b>82,5</b>	<b>80</b>	<b>81</b>
Estonia	4,8	5	4,4	4,5	7,1	6,7	6,1	9,8
<b>Ireland</b>	<b>34,5</b>	<b>29,4</b>	<b>24,6</b>	<b>44,2</b>	<b>64,4</b>	<b>91,2</b>	<b>104,1</b>	<b>117,4</b>
<b>Greece</b>	<b>103,7</b>	<b>98,9</b>	<b>107,5</b>	<b>112,9</b>	<b>129,7</b>	<b>148,3</b>	<b>170,3</b>	<b>156,9</b>
<b>Spain</b>	<b>55,6</b>	<b>46,3</b>	<b>39,7</b>	<b>40,2</b>	<b>54</b>	<b>61,7</b>	<b>70,5</b>	<b>86</b>
<b>France</b>	<b>56,9</b>	<b>65</b>	<b>64</b>	<b>68,2</b>	<b>79,2</b>	<b>82,4</b>	<b>85,8</b>	<b>90,2</b>
<b>Italy</b>	<b>108,3</b>	<b>103,7</b>	<b>106,3</b>	<b>106,1</b>	<b>116,4</b>	<b>119,3</b>	<b>120,7</b>	<b>127</b>
Croatia	.	.	.	.	36,6	44,9	51,6	55,5
Cyprus	61,2	70,9	64,7	48,9	58,5	61,3	71,5	86,6
Latvia	14,1	15	10,7	19,8	36,9	44,4	41,9	40,6
Lithuania	23	19,3	17,9	15,5	29,3	37,8	38,3	40,5
<b>Luxembourg</b>	<b>6,3</b>	<b>6,4</b>	<b>6,7</b>	<b>14,4</b>	<b>15,5</b>	<b>19,5</b>	<b>18,7</b>	<b>21,7</b>
Hungary	52,7	59,5	65,9	73	79,8	82,2	82,1	79,8

Malta	58,9	69,8	62,5	60,9	66,5	66,8	69,5	71,3
<b>Netherlands</b>	<b>50,7</b>	<b>52,4</b>	<b>47,4</b>	<b>58,5</b>	<b>60,8</b>	<b>63,4</b>	<b>65,7</b>	<b>71,3</b>
<b>Austria</b>	<b>66,8</b>	<b>64,7</b>	<b>62,3</b>	<b>63,8</b>	<b>69,2</b>	<b>72,3</b>	<b>72,8</b>	<b>74</b>
Poland	37,6	45,7	47,7	47,1	50,9	54,9	56,2	55,6
<b>Portugal</b>	<b>53,8</b>	<b>61,9</b>	<b>69,4</b>	<b>71,7</b>	<b>83,7</b>	<b>94</b>	<b>108,2</b>	<b>124,1</b>
Romania	25,7	18,7	12,4	13,4	23,6	30,5	34,7	37,9
Slovenia	26,5	27,3	26,4	22	35,2	38,7	47,1	54,4
Slovakia	48,9	41,5	30,5	27,9	35,6	41	43,4	52,4
<b>Finland</b>	<b>42,5</b>	<b>44,4</b>	<b>39,6</b>	<b>33,9</b>	<b>43,5</b>	<b>48,7</b>	<b>49,2</b>	<b>53,6</b>
<b>Sweden</b>	<b>54,7</b>	<b>50,3</b>	<b>45,3</b>	<b>38,8</b>	<b>42,6</b>	<b>39,4</b>	<b>38,6</b>	<b>38,2</b>
<b>United Kingdom</b>	<b>37,3</b>	<b>40,3</b>	<b>42,7</b>	<b>51,9</b>	<b>67,1</b>	<b>78,4</b>	<b>84,3</b>	<b>88,7</b>

Source: own study on the base of Eurostat (download 21.02.2014).

It is worth noticing that, after 2008, from the beginning of the financial crisis, the debt in all the EU countries has grown, which means that all those countries had to react with active fiscal policies, wanting to soothe its consequences. The only exception is Sweden, where public debt has decreased from 2001, apart from 2009, when it grew by 3.8 p.p., to decrease again. It is especially interesting as Sweden represents a typical caring country, characterised by high social expenses. It shows that “dismantling” a caring country is not needed. What is required is reforms and, at the same, time monitoring integration and globalisation issues. Among “the old 15” of the EU, the worst situation was visible in Ireland, Greece, Italy or Portugal, where public debt went over 100% GDP. As for the new members, Estonia was the least indebted, whereas Cyprus, Hungary and Malta exceeded the level of 60% GDP. The worst situation was in Cyprus and Hungary, which reflected on financial markets.

Looking at GDP rates (table 2), where there was economic growth in all the EU countries until 2008 (with the exception of Malta in 2004), after that year the positions differentiated.

**Table 2. GDP rates (%) year to year**

<b>Countries/ year</b>	<b>2002</b>	<b>2004</b>	<b>2006</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
<b>Belgium</b>	<b>1,4</b>	<b>3,3</b>	<b>2,7</b>	<b>1</b>	<b>-2,8</b>	<b>2,3</b>	<b>1,8</b>	<b>-0,1</b>
Bulgaria	4,7	6,7	6,5	6,2	-5,5	0,4	1,8	0,8
Czech Republik	2,1	4,7	7	3,1	-4,5	2,5	1,8	-1
<b>Denmark</b>	<b>0,5</b>	<b>2,3</b>	<b>3,4</b>	<b>-0,8</b>	<b>-5,7</b>	<b>1,4</b>	<b>1,1</b>	<b>-0,4</b>
<b>Germany</b>	<b>0</b>	<b>1,2</b>	<b>3,7</b>	<b>1,1</b>	<b>-5,1</b>	<b>4</b>	<b>3,3</b>	<b>0,7</b>
Estonia	6,6	6,3	10,1	-4,2	-14,1	2,6	9,6	3,9
<b>Ireland</b>	<b>5,4</b>	<b>4,2</b>	<b>5,5</b>	<b>-2,2</b>	<b>-6,4</b>	<b>-1,1</b>	<b>2,2</b>	<b>0,2</b>
<b>Greece</b>	<b>3,4</b>	<b>4,4</b>	<b>5,5</b>	<b>-0,2</b>	<b>-3,1</b>	<b>-4,9</b>	<b>-7,1</b>	<b>-6,4</b>
<b>Spain</b>	<b>2,7</b>	<b>3,3</b>	<b>4,1</b>	<b>0,9</b>	<b>-3,8</b>	<b>-0,2</b>	<b>0,1</b>	<b>-1,6</b>
<b>France</b>	<b>0,9</b>	<b>2,5</b>	<b>2,5</b>	<b>-0,1</b>	<b>-3,1</b>	<b>1,7</b>	<b>2</b>	<b>0</b>
Croatia	4,9	4,1	4,9	2,1	-6,9	-2,3	-0,2	-1,9
<b>Italy</b>	<b>0,5</b>	<b>1,7</b>	<b>2,2</b>	<b>-1,2</b>	<b>-5,5</b>	<b>1,7</b>	<b>0,5</b>	<b>-2,5</b>
Cyprus	2,1	4,2	4,1	3,6	-1,9	1,3	0,4	-2,4
Latvia	7,1	8,8	11	-2,8	-17,7	-1,3	5,3	5,2
Lithuania	6,8	7,4	7,8	2,9	-14,8	1,6	6	3,7
<b>Luxembourg</b>	<b>4,1</b>	<b>4,4</b>	<b>4,9</b>	<b>-0,7</b>	<b>-5,6</b>	<b>3,1</b>	<b>1,9</b>	<b>-0,2</b>
Hungary	4,5	4,8	3,9	0,9	-6,8	1,1	1,6	-1,7
Malta	2,4	-0,3	2,6	3,9	-2,8	3,3	1,7	0,9
<b>Netherlands</b>	<b>0,1</b>	<b>2,2</b>	<b>3,4</b>	<b>1,8</b>	<b>-3,7</b>	<b>1,5</b>	<b>0,9</b>	<b>-1,2</b>
<b>Austria</b>	<b>1,7</b>	<b>2,6</b>	<b>3,7</b>	<b>1,4</b>	<b>-3,8</b>	<b>1,8</b>	<b>2,8</b>	<b>0,9</b>
Poland	1,4	5,3	6,2	5,1	1,6	3,9	4,5	1,9
<b>Portugal</b>	<b>0,8</b>	<b>1,6</b>	<b>1,4</b>	<b>0</b>	<b>-2,9</b>	<b>1,9</b>	<b>-1,3</b>	<b>-3,2</b>
Romania	5,1	8,5	7,9	7,3	-6,6	-1,1	2,2	0,7
Slovenia	3,8	4,4	5,8	3,4	-7,9	1,3	0,7	-2,5

Slovakia	4,6	5,1	8,3	5,8	-4,9	4,4	3	1,8
<b>Finland</b>	<b>1,8</b>	<b>4,1</b>	<b>4,4</b>	<b>0,3</b>	<b>-8,5</b>	<b>3,4</b>	<b>2,8</b>	<b>-1</b>
<b>Sweden</b>	<b>2,5</b>	<b>4,2</b>	<b>4,3</b>	<b>-0,6</b>	<b>-5</b>	<b>6,6</b>	<b>2,9</b>	<b>0,9</b>
<b>United Kingdom</b>	<b>2,3</b>	<b>3,2</b>	<b>2,8</b>	<b>-0,8</b>	<b>-5,2</b>	<b>1,7</b>	<b>1,1</b>	<b>0,3</b>

Source: own study on the base of Eurostat (download 21.02.2014).

The worst situation occurred in Greece, where GDP has taken negative values from the beginning of the crisis. Similarly, Croatia – also a new member, has noted the decrease in GDP after 2009. In Ireland, deeply affected by the crisis, it has been possible to achieve a positive GDP since 2010. The only country without the negative values in GDP was Poland, whose public debt has not exceeded 60% GDP. For this reason, there were no difficulties selling treasury bonds on financial markets. Very sharp falls in GDP have been noted in Estonia after 2009 (-14%), Latvia (-17,7%) or Lithuania (-14,8%), in which positive economic growth has been observed in subsequent years. The situation has improved to such an extent that Estonia was accepted to the euro area.

It is worth looking at the average nominal interest rate calculated for treasury bonds. The highest nominal rates were observed in Greece (9,09% in 2010; 15,75% in 2011), Portugal (10,24% in 2011) and Ireland (9,6% in 2011), which is a proof of the difficult situation in these countries. After 2008 the rate for “the old 15” has fluctuated around 4%, except for Great Britain, where it amounted to 5,6%. Regarding the new members, the highest rate was for Hungary and Romania, 6.7% and 7.13% respectively. At the end of 2011 the lowest rate was for Denmark (2,73% in 2011), Sweden (2,61% in 2011) and Great Britain (2,87% in 2011) – the countries outside the euro area. Among the countries within the euro area only Luxembourg and Holland had the rate below 3%. The proof of trust in financial markets was the influx of foreign investments. According to Eurostat’s data [2013] at the turn of 2009/2011 the highest amount of such investments was noted in Luxembourg, on average 35.7%, followed by Great Britain with 16.7%, Germany – 8.9%, France – 6.7% and Sweden – 4.1%. These countries have been affected by the crisis, nevertheless their fiscal policy has been conducted in a way, which in investors’ opinions enables to stay optimistic and proved efficient.

The financial crisis, which translated into deteriorating the relation between public debt and GDP deficit, was made worse by the activities from the automatic market situation stabilisers, as well as the use of discretionary fiscal policy instruments – stimulating packages, mainly through direct financial aid

for the financial sector. Since 2010 budgetary deficits have decreased, despite the fact that the pace of this phenomenon has depended on the specific situation of the country. Consolidation is being continued in the euro area, especially in these countries which contributed to the debt crisis in this group. Namely in Greece, Ireland and Portugal. To avoid insolvency and improve credibility of fiscal reform, these countries had to implement consolidation instruments to be able to apply for bail-outs offered by the EU/IMF.

Another factor, thanks to which the situation gets more complex, is the tendency to open economies in conditions of globalization and integration, which lowers the effectiveness of fiscal policy. During the latest crisis, there were a lot of debates regarding conducting fiscal policy. According to the economists from the IMF, for the fiscal stimulus to ensure stability over a long period of time, it has to be implemented immediately, at a large scale and have a long term duration. It should also be differentiated, taking into consideration the instruments used and implemented in the large number of countries. The choice of the scale and the instruments should be also based on the solvency of the government, builds trust from financial markets – a key factor in stability and economic prosperity.

As the experiences of the last few years have proven, the fiscal consolidation based on expenditure, resulting in limiting public debt, is not enough. It is true that the fiscal consolidation based on expenditure cuts brings long lasting effects more effectively than the one based on the tax rises, but the latter could be effective providing the tax base is wider and the taxation systems – more simple. The good examples are the Baltic States. Quick consolidation could cause Keynes' effects, meaning the fall in production level and the rise in unemployment, which is already apparent in the EU. If, together with the consolidation, there are also such factors as cutting interest rates, the fall of the national currency and the growth in export, the effects are milder, which is visible looking at Poland, but not at the euro area.

This does not calm down financial markets.

## **Conclusion**

The aim of fiscal policy of the future should become to counterpart speculative bubbles, which pose a threat to financial markets in terms of their reliability and credibility. To make that possible, the instruments of fiscal stimulation should be carefully prepared and introduced as well as properly implemented according to the situation of the particular economy. Internal imbalances and instability of the financial systems of specific countries contributed to worsening the crisis, causing the domino effect. The choice of the scale and the fiscal



instruments depends on fiscal stability over a medium and long period of time as it creates trust in the government and therefore the conditions for economic prosperity and financial markets development. Postponing stabilizing public finances will not bring anything good, on the contrary, it could destabilize the expectations of the economic entities, increasing the cost of government credits. Achieving the balance between contradictory aims will pose one of the biggest challenges, especially in times of progressing integration.

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## Methods and Marketing Instruments of Logistic Processes

*Modern enterprises face intensive competitiveness,  
and the farther into the future, the more difficult it will be*

Ph. Kotler [2002], *Marketing. European Handbook*

### **Abstract:**

Knowledge about a logistic process in SMEs can be the way to growth of competitiveness of a company by improving those processes. One of the ways can be use of marketing as a support of a logistic process. Identification of logistic activities, logistic process and management should be based on full knowledge about market and its participants. Achieving knowledge and accumulation as a resource allow increasing logistic standards such as supply process, production, storage and distribution. It can contribute to recognize possibilities of competitor's opportunities. Using marketing methods and instruments in logistic processes can increase competitiveness of SMEs.

**Key words:** logistic process, marketing methods and instruments, SME sector.

### **Introduction**

As a result of dynamic changes in the business environment, the use of traditional management methods does not ensure success in the market, and a new approach to marketing makes managers recognize the need to develop more dynamic models of running a business [Gattoma 2013, p. 16]. Global trends of management methods go beyond the classical framework, but they are not

widely known in the practice of companies. An example of new methods can change management through sensemaking and sensegiving [Sułkowski 2013, p. 85]. Managing a company in a market economy must now take into account the multifaceted elements affecting the corporate strategy. Interdisciplinarity of the company management means that it is necessary to possess many domains of knowledge including marketing which plays an important role. One of the features typical for the modern enterprise is the ability to conduct logistics processes in a manner that allows to obtain the anticipated financial, marketing and marketing results. Marketing and logistics are two closely related areas of human activity. Both of them affect the direction of the development of the economic and social sphere, support the development of science, practice as well as private and professional life of the population. Marketing support of logistics processes is a subject of research on improvement of competitiveness of enterprises, especially the use of modern methods of management in SMEs. There are no studies on the use of modern marketing achievements in the improvement of logistics processes [Janczewska 2011]. The results of Polish and foreign studies indicate that it is difficult to combine these two areas as there are many barriers and it greatly weakens the dynamics and development of the SME sector, especially microbusiness. The main reason for this is the difficulty in finding common goals and forms of supporting logistics with marketing instruments and the lack of information on the possibility of providing such support. Thus a question arises: how to improve the relationship between marketing and logistics to decrease the distance between these two areas of human activity so that they become closer and more harmonized. Therefore in this section of the article are presented results of own researches of methods and marketing instruments in SMEs confectionery branch. The own researched were conducted in 2000–2009 years in 100 of SMEs with application of survey by questionnaire, observation and by confectionery branch expert opinion. There are presented two hypothesis:

- I. Marketing instruments support the realization of logistic process in enterprise, by giving the knowledge of expectation of market.
- II. Using the marketing support can be the competitiveness element of enterprise.

The researches proved that a well-targeted marketing activity can reduce the gap between marketing and logistics and help achieve synergy effect One of the aspects of the practical application of marketing is the use marketing instruments in the management of logistics processes in SMEs. The purpose of this article is to present the applicability of marketing methods in the implementation of logistics processes in the enterprise.

**Logistics processes in SMEs**

Management of SMEs discussed on the level of processes allows for comprehensive presentation and definition of the business. The specificity of management of SMEs concerns a number of areas, such as organizational structure, human resource management system, the implementation of management functions, defining of strategic goals. Marketing objectives of the company require support of a dynamic and efficient logistics processes and by analogy the implementation of logistics processes should be complemented by marketing activities. Combining marketing and logistics in the company allows meeting the objectives of the business, the effects of which will satisfy the needs of customers. In the literature, there are very few studies on the use of marketing and logistics approach to business management in the SME sector. Defining and shaping resources of the enterprise is correlated with specific and limited financial resources, which in turn exerts impact on all areas of management in the SME sector. Table 1 below shows the characteristics of a small and medium-sized enterprise in selected areas of business management.

**Table 1. Characteristics of management of a small and medium-sized enterprise**

Selected areas of management	Features of a given management area in an SME
Organisational structure	Simplified structure or lack of such a structure, horizontal, flattened structure, the owner manages employees directly. Combining ownership and management.
Human resources system	Self-employment, family business, a limited number of employees performing different tasks.
Management functions	The owner is also the manager. Centralized control method, a limited number of middle managers.
Setting strategic goals	The owner sets strategic goals of the company intuitively, rarely uses the help of specialists. The decisive factor is the proximity to the market. Choosing a niche strategy or lack of strategy - focus on survival.
Knowledge resources	Practical knowledge based on the experience of the owner. Education of managers is not renewed in the system of continuous education.

Human resources	A limited number of employees, often without necessary skills and competence.
Planning system	Lack of planning on the part of the owner, or short-term planning, temporary planning related to current activities of the company.
Organisation of working time	Low degree of task formalization. No bureaucracy. Organizing the work of the owner applies to single products or services, individual or simple products.
Decision-making	Quick decision-making by the owner, risk aversion, fear of losing market.
Control systems	Owner's personal supervision of his business, simplified control systems.
Change management	Responding to customers' needs, specific direct relationships with customers.
Logistics and marketing	Lack of explicit marketing orientation Occasional use of marketing instruments, logistics processes focused on internal resources, based on customer relations.
Innovations	Narrow specialization an area of little interest for large companies. Mainly organizational and process innovations.

Source: own study based on: B. Nogalski, J. Karpacz, A. Wójcik-Karpacz, *Operation and development of small and medium-sized enterprises*, Published by AJG, Bydgoszcz 2004, p. 26 and D. Janczewska, *Marketing and logistics elements in management of a family business*, pp. 179–192 [in:] *Family business: determinants of theirs operation and development* [ed.] Ł. Sułkowski, Published by SWSPiZ in Łódź: "Entrepreneurship and Management", vol. XII, issue 6, 2011.

Logistics management in a small and medium-sized enterprise includes the processes of movement of goods and people and supporting activities in systems in which they occur [Blaik 2010]. The purpose of logistics activities in the company is to provide goods or services adhering to the following principles:

- proper customer;
- proper products;
- proper quantity;
- proper quality;
- proper place;
- proper time;
- proper price (proper costs).

Knowledge of logistics processes in a small and medium-sized enterprise, their structure and sequences can become the basis for identifying problems interfering their implementation and as a result can lead to their improvement. The most important categories of logistics processes include:

- processes that support physical movement of materials and goods;
- processes that support flow of information;
- processes that support logistics of customer service.

The processes that support physical movement of materials and services include transport, storage, handling, sorting, packaging and labelling, production and distribution processes. Comparing structures of logistics systems in large enterprises and companies from the SME sector you can identify individual nature of the systems and their limitations. In case of SMEs transport processes require the use of appropriate means of transport, mainly road transport. Warehouse processes are implemented using the storage infrastructure with a predominance of traditional types and kinds of warehouses. In the SME sector storage facilities are not usually modern and do not use the state-of-the-art technologies. Handling, sorting, and packaging is mostly done by hand, which does not allow for an increase in productivity or increase of quality standards. Logistics of production processes in SMEs is related to the technology used, and the type of production. In many SMEs production is automated and requires continuity of raw materials supply. Companies which exercise discrete manufacturing need adequate supply and distribution.

In the SME sector information flow processes use Internet, GPS and satellite communications. Quick access to information makes it possible to achieve market advantage and allows you to interact with customers and suppliers.

Currently, the most promising field of logistics activities is customer service, which has become a strategic formula and an element of market struggle. Logistics customer service requires the use of marketing instruments in order to improve and enhance comprehensive customer service. Logistics customer service is seen as the ability to meet requirements and expectations of customers mainly regarding the place and time of delivery using all available forms of logistics activity, including transportation, warehousing, inventory management, and packaging [Kempny 2001, p. 15].

Logistics processes applied in SMEs are different than logistics processes used in large organizations, such differences not only being due to the size of the company and its resources. The way of defining logistics processes and standards for their implementation result from skills and experience of the

company, know-how and intellectual capital being the most important. Characteristics of logistics processes in an enterprise can be examined in a multifaceted way depending on the used criteria [Dwiliński 2006, p. 19]: resource approach: it takes into account resources needed to implement a given process, functional perspective: concerns the provision of resources to the company and supply of finished goods to customers, efficiency approach: includes valuation of logistics solutions using estimation of economic, technical, quality, social, ecological etc. parameters. In SMEs it is the owner or a person designated by an owner that deals with logistics management. On the basis of the comparison of implementation of logistics processes and characteristics of selected logistics processes we can point out differences between large companies and SMEs:

- logistic processes in SMEs are run intermittently, free – it depends on the level of available resources;
- a small and medium-sized enterprise is focused on minimizing costs due to limited resources;
- in SMEs transport processes are implemented using traditional methods and own means of transport;
- the use of computers and the Internet in SMEs is much more limited compared to large organizations;
- logistic processes such as control and restocking is performed using traditional methods, computers are used occasionally;
- microcompanies do not apply specialized programs supporting management.

Significant differences in the level of resources and logistics infrastructure allow you to specify features of logistics processes typical for large enterprises and SMEs. Given such a diversity of approaches in the description of the characteristics of logistics processes in a SME there is the issue of quality analysis of logistic processes in this sector.

### **Defining marketing support for logistics processes – in light of literature researches**

Starting from the definition of marketing formulated by Ph. Kotler [Kotler 2002] according to which “Marketing is a social and managerial process by which specific individuals and groups get what they need and want to achieve by developing, offering and exchanging products of value”, its components can be interpreted in relation to management of an SME. However, in order to demonstrate the links between marketing and the management of logistics



processes we need to define the basic concepts of Kotler's definition relating to the logistics process<sup>1</sup>:

- social process means that logistics activities and implementation of logistics processes are not individual and single events, but they are repetitive actions, which consists of subsequent phases and activities typical for a given SME based not only on individual but social needs;
- management process means that the entire logistics process and its various phases constitute an integral part of the management process and as such should be supported by marketing activities which are a part of the overall market strategy of a company;
- specific persons and groups (institutions) which are participants of a logistics process, which is addressed to a customer waiting for the ordered product or service;
- needs with respect to:
  - institutions: generally speaking, expectations of higher efficiency of an SME manifested in improved market performance, specific indicators of competitiveness in a given industry or in a particular market;
  - people: specific individuals i.e. employees of such institutions implementing the logistics process expect better working conditions, their needs being met;
  - final customers: they expect delivery of better products and services within the specified time, offering attractive products that meet customer requirements;
- creation: design by SMEs new product types and solutions that will result from improvement of logistics processes, use of new raw materials, and new knowledge;
- offering: presentation of the results of improvement of logistics processes, implementation of logistic processes and monitoring of their effectiveness. All this should meet customer expectations;
- exchange: a change of ownership of the results of design and manufacturing work of a company i.e. its sales in the broader market to individual customers and institutional clients.

The analysis of Kotler's definition allows for formulation of a modified definition of marketing of logistics processes as follows: Marketing of logistics

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<sup>1</sup> See also L. Białoń, D. Janczewska – *Innovation marketing* [in:] *Marketing identity and image*, edited by R. Niestrój, Published by PWE, Warszawa 2009, pp. 202–210.

processes is a social and managerial process consisting in development, offering and exchange of logistics solutions in the field of business processes so as to meet the needs of people and institutions through improvement of processes, resulting in increasing competitiveness of companies, and finally in increase of the level of life of the society. A definition suggested in this article can be understood in the context of marketing support of logistics processes with use of modern marketing tools. Marketing support of logistics processes can be analysed in many institutional contexts, i.e.:

- In large enterprises that have a logistics department, or a well-developed logistics structure logistic planning of marketing and logistics activities is feasible; In such a case we can assume that the entire logistics process is supported by appropriate marketing activities, such as market analysis, customer segmentation, competitor research, customer expectation monitoring etc. In these enterprises marketing and logistics activities are formulated and implemented. Such activities constitute marketing and logistics management system.
- In medium-sized enterprises, very few of which have a developed logistics and marketing structure a logistics and marketing concept can be developed only through close cooperation between relevant departments, but implementation of such a concept will require assistance of external companies.
- Small enterprises and micro-enterprises lack adequate organizational structures responsible for planning and implementation of marketing and logistics processes. It is often a business owner or a person designated by an owner<sup>2</sup> that is responsible for such activities and implements the process of marketing support in an incomplete way or does not use marketing tools in logistics processes at all.

This type of marketing support is called marketing logistics, which according to the methodology of Oslo Manual (Sec. 1, p.1.1.) means the use of new marketing forms and techniques in logistics that have not been used so far in business operation. You can equate marketing, logistics and marketing logistics when implementation of new marketing ideas needs initiation of a logistics process. The integration of this kind can be explained on the basis of transformation and development of marketing [Kotler, Kartajaya, Setiawan 2010, p. 20].

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<sup>2</sup> During one discussion with students about organizational structures it turned out that many small enterprises a person who deals with logistics is the one that is subordinate to a warehouseman which obviously limited the scope of logistics to the activities performed in the warehouse.

**Results of own researches of marketing as support of logistic process in SMEs in confectionery branch**

The own researches of marketing as support of logistic process in 100 of SMEs were conducted in years 2000–2009 in confectionery branch. Selecting the sample group was intentional, and sample was not representative. Thus the results of researches apply only to researched SMEs companies located in regions: Mazowieckie, Łódzkie, Kujawsko-Pomorskie and Wielkopolskie. The study used different methods such as surveys, interviews, direct observation and interviews with experts. The study included 100 SMEs operating in manufacturing industry (60%), trade (30%) and services (30%). The content of Table 1 is the result of a study conducted in 2000–2009 in SMEs operating in confectionery industry. One of the main task in the field of market reconnaissance which also provides marketing support for logistics processes is defining a set of activities included in Table 2. This Table contains features and objectives of marketing activities which support logistics processes in the enterprise as results of own researches.

**Table 2. Marketing support of logistics processes in an SME – results of own researches**

Type of logistics process	Features of marketing support activities	Objectives of marketing support	Implementation of activities covered by the marketing support	
			Marketing instruments and methods	Expected results and benefits for an SME.
Processes of physical flow of materials and goods	Analysis of the needs of enterprises in line with the available resources and the requirements of the market	Recognizing the potential technology in the enterprise and resources of knowledge	Method: Marketing audit, SWOT analysis, PESTE analysis, marketing research  Tool: product	Recognition of the production capacity of the company and its market potential. Defining a resource gap. The ability to create a market strategy for a product or a service
	Defining logistics activities in processes	The analysis of the logistics process, defining the input and output vectors, defining the effectiveness of the process	BCG analysis, SWOT analysis Internal marketing study  Tool: price as an element exerting an impact on customers	Setting standards and quality requirements of individual logistics processes. Determination of criteria for cost-effectiveness of processes Forecasting profits
	Selection of suppliers Searching for customers  Analysis of competitors	Obtaining full knowledge about market stakeholders, suppliers and recipients	Marketing research Analysis of Porter's five competitive forces, Analysis of the key success factors, value-added analysis Analysis of distribution channels. Tool: distribution	Development of databases of potential suppliers and customers. Market segmentation Obtaining accurate data about the market

Processes of information flow	Selection of information flow channels	Development of a system of information flow in an enterprise and defining exchange of information with the environment	Marketing research The study of information flow channels in a given industry (marketing research) Tool: promotion	Faster flow of information in the enterprise, a system of information exchange with the environment
	Selection of technology and information techniques	An enterprise possessing state-of-the-art means of communication and information flow	Assessment of the current level of information technology and software available in the company (marketing study)	Obtaining knowledge about the current status and availability of information technology
	Launching state-of-the-art channels of information flow	Accelerating information flow in all logistics processes	Examination of the level and quality of information flow within the company and between the company and the environment (Marketing study)	Reducing the time of flow of information, increasing decision-making process, growth of competitiveness
Processes of logistics of customer service	Recognizing the needs of customers, Recognition of market trends	Customer segmentation Forecasting future needs of specific market segments	Market research: segmentation analysis, analysis of strategic groups in the sector Tool : 4P	Gaining knowledge of customer groups and their present and future needs
	Establishing relations with customers	Ensuring customer loyalty	Customer satisfaction survey, loyalty test, customer life cycle test Tool : 4P	Obtaining knowledge about the level of customer satisfaction and forecasted needs in the future Knowledge of the life cycle of the customer and a market segment
	Ensuring flexibility of supply	Defining the level of supply for specific market segments	Studying customers' needs, identification of future projected purchasing needs  Tool : 4P	A possibility to plan logistics processes properly, increase of productivity and efficiency

Source: own study based on own researches.

The enterprises used a variety of logistics processes which can be classified in three categories: processes of physical movement of materials and products, processes of information flow and processes of customer service. Depending on the type of business and the range of products logistics processes were developed as well as and their importance was observed in the enterprise. 80% of the studied enterprises did not see the need to apply marketing in logistics processes, 10% used marketing support in logistics processes and in processes of logistic customer service and intended to expand the scope of marketing support in logistics processes in the future. Only 10% of studied companies saw the need to combine logistics processes with marketing activities, indicated the need to use marketing instruments in planning and implementation of logistics processes and gained measurable benefits by doing so.

### **Conclusion of the own researches**

We can generally say (referring to the studied group) that in the studied group of companies, there is a possibility of applying marketing support for logistics processes and define beneficial effects of such support for companies.

Researches confirmed both of hypothesis. The marketing support is important to reach the better competitiveness position in branch. It is important that persons involved in the implementation of marketing and logistics concept of the business development referring to SMEs had the knowledge necessary to implement this concept. This knowledge includes: knowledge necessary to develop a marketing and logistics orientation of the company, know-how of the industry in which the company operates information about specificity of the company operation and skills of its employees, ability to study marketing environment, knowledge about possibilities of cooperation with customers and understanding their specific needs, ability to conduct marketing research and collect information necessary to make assumptions for the purpose of management decisions regarding logistics processes.

More detailed tasks of marketing and logistics should arise from the specific nature of the company operation and the market in which it operates. Consequently, the generally formulated tasks are as follows:

- participation in development of the company mission, vision and strategy for business development of SMEs, building its image;
- development of a marketing strategy that would prefer a modern approach to logistics processes, including logistics of customer service;
- customer segmentation, selecting strategic clients;
- development of customer loyalty programs, their improvement and evaluation;

- conducting marketing research, the basic goal of which should be recognition of basic customer needs and comparing them with logistics possibilities of a company;
- conducting marketing research, the aim should be to recognize the basic customer needs and referring them to the possibility of logistics companies
- creation of new needs arising from global industry development trends based on science and technology;
- monitoring and analysis of the marketing environment, identifying competitors and cooperating companies;
- development of marketing-mix tools suitable for logistics processes in a given enterprise and in line with customers' needs;
- organizing cooperation between the enterprise with its institutional environment, marketing departments of other companies with respect to formulation, execution and implementation of market activities;
- evaluation and control of marketing activities, their impact on the course and efficiency of logistics processes, and thus the success of the company.

The activity of marketing department (or marketing managers) in respect of their support for logistics processes in the enterprise is more complex than the marketing activity itself. It is based on marketing-mix tools and addressed to market recipients.

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## Equity Investments vs. Debt Investments – What Drives OFDI in Polish Industry

### Abstract:

Polish economy witnessed enormous changes over the past 25 years. Systematic economic growth, increasing market openness, legal stabilization and integration with EU have substantially improved Poland's global competitive position. That is reflected, among others, in intensified flows of long-term capital in the form of foreign direct investment (FDI). What is worth stressing, the last decade (regardless the economic crisis) brought a significant rise of investments made by Polish companies abroad (Outward FDI). It should be mentioned however, that the FDI flows are usually analyzed (in both theoretical and empirical literature) as if they consist only of equity investments, when in fact they consist also of intracompany loans. As the latter may not be driven by the same factors as equity flows, the real structure of FDI flows should be taken into consideration while evaluating the investment potential of companies. The paper examines selected issues concerning international expansion of Polish companies in the form of foreign direct investment. It provides theoretical background of the problem, explores the reasons for expansion and presents the structure of foreign direct investment by Polish industrial companies in the period 2003–2012 with regard to the equity and debt components of the flows. The study is based on the data provided by the National Bank of Poland (NBP).

**Key words:** OFDI, internationalization, international equity and debt investments, Polish enterprises.

**JEL Classifications:** F21, F23

## Introduction

Intense globalisation, regionalisation and liberalisation that took place in recent years in the global economy have created new conditions for business operations. Classical national markets have lost importance in favour of more and more accessible international markets. Besides, continued disproportions in relative availability (and costs) of production factors between countries and differences in the cost of manufacturing encourage companies to seek the most convenient locations for their businesses outside of their home countries. So far Poland has been internationally perceived as an attractive investment location.

Although inflows of capital into the Polish economy still exceed the outflows (i.e. Poland remains net importer of foreign capital), the last decade witnessed also increasing expansion of Polish companies through outward foreign direct investment (OFDI). This relatively fresh tendency confirms the growth of Polish economy and the change of its international competitive and investment position. However, one should remember, that the FDI statistics based on balance of payment distinguish two main types of flows: equity investments and intracompany short-term and long-term loans. Usually, the equity investments are perceived as primary ones, while debt seems to be subsequent. As the latter may be driven by different factors than the equity flows, the aggregated value of OFDI provided by official statistics may not reflect the real potential of home companies.

The paper aims at explaining the sources of competitive advantages of Polish entities that enabled them to engage successfully in OFDI, as well as at providing some verification of scale and the structure of foreign direct investment of Polish companies, in particular in the industrial sector. The main stress is put on the distinction between equity and debt investments in order to assess the real expansion potential of the companies.

The article is structured as follows. The first part highlights the research problems against existing literature and available data. The main research questions have been formulated as well. Second one explains the sources of international competitiveness and strength to expand achieved by companies covered by the study against selected theoretical concepts, which explain the FDI. The third part discusses the scale as well as sectoral structure of the FDI of Polish manufacturing companies with regard to their equity and debt components. Main findings are presented in conclusions. The analysis covers the period of 2004–2012.

### Research questions and data

In the theoretical models, especially those based on industrial organization economies, FDI are understood mostly as equity flows which result from national factors and existing market imperfections [Caves 1971, Hymer 1976, Rugman 1981]. International expansion (i.e. FDI) of a company is effective only when several conditions appear, among which the initial strong competitive advantages of the investor is crucial. Having examined those theories one can think, that FDI flow consist only of equity flows generated by the strongest companies in the internationally competitive branches. "FDI data are often appraised as if they consist exclusively of new equity flows, when in fact they also include reinvested earnings as well as short-term and long-term intra-company debt flows" [Salorio, Brewer 2000]. But most of existing literature fail to distinguish between two types of investments.

In the first stage of active internationalisation of the economy one should expect the first type of flow (new direct equity investment) to increase and, consistently, to expand the ownership of foreign assets. If mentioned in theoretical analysis, intracompany loans are perceived as subsequent flows to the equity ones – the company must set up a foreign subsidiary (which is an initial equity investment) in order to be able to generate internal debt flows afterwards. But yet, if the multinational (MNE) sets up an entity in a host country, the latter may occur also between this foreign affiliate and its parent-company (if so, debt flows will be subsequent to the IFDI equity flows not OFDI equity flows). Therefore, important and increasing share of intracompany loans, especially when not preceded by OFDI equity flows, may confirm the domination of multinational corporations over domestic novice investors. Taking into consideration the amount of foreign subsidiaries located in Poland, we may expect that a significant part of outward debt investments made by Polish entities are just a part of international capital flows within a MNE.

While examining OFDI issues, one should remember that equity flows and debt flows may be driven by different factors. Equity flows usually reflect international competitive potential of the home company, while the latter take advantage of flexibility of multinational system [Kogut 1983]. Debt linkages may arise from the strategic decision of mother-company, i.e. when some of the foreign entities are in need or, when favorable conditions on the financial market of host country appear<sup>1</sup>.

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<sup>1</sup> Some researches try to explain intracompany debt flows on the background of financial economics emphasizing the role of interest rates, exchange rates and inflation [Aliber 1970] or even tax rates [Hartmann 1984, 1985] in creating FDI.

All in all, the cumulated values of OFDI presented in official statistics may not entirely reflect real international competitiveness of Polish enterprises, as debt components other than equity made the scale of FDI (and OFDI) bigger than it really is. Therefore two main research questions were formulated for the paper:

1. To what extent the total value of OFDI reflect competitive potential of Polish industrial companies?
2. Are there any sectoral differences in OFDI flow composition, and if so, what can be the explanation?

In order to assess the scale of Polish OFDI with regard to the above mentioned problems, the data provided by the National Bank of Poland (NBP) have been used. NBP divides the total FDI flow into two main streams. The first one, which can be considered as “primary investment” consist of initial equity investments and reinvested profits/earnings (retained dividends). They rise value of assets owned by foreign investors abroad. The second type of flows includes all loans granted by Polish entity to related affiliates within a capital group (intracompany loans). This breakdown allows to measure to what extent Polish entities are strong enough to start their own investments abroad and in what part they are just a source of capital for parent-multinational in need.

### **Theoretical background of the expansion of Polish companies in the form of FDI**

During the last 25 years Polish economy experienced exceptional economic and systemic transformation. Gradual and uninterrupted (even during the financial crisis) economic growth and development, accumulation of capital linked with structural changes in the economy<sup>2</sup> and integration with the EU market have considerably altered the competitiveness and comparative advantages of the Polish economy. From being an economy in transition Poland has evolved to an industrialised developed country. Although dominant advantages are still found in traditional industries, manufacturing in modern, technically advanced industries and services develops quickly, in particular in recent years.

The above has also largely influenced the scale of international capital links and the change of international investment position of Poland, especially in the area of FDI. Despite remaining the net importer of capital, Polish econ-

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<sup>2</sup> Dominant labour and resource-intensive industries have been partly replaced by technologically advanced manufacturing.

omy get more and more exporter of capital in the form of FDI. Some macroeconomic concepts of FDI, in particular the idea of an *Investment Development Path* (IDP) by J.H. Dunning [1981; 1986] and dynamic theory of economic development and competitive advantage of T. Ozawa [Ozawa 1992; Kłysik-Uryszek 2012] draw attention to the impact of economic development on the scale, structure and directions of FDI capital flows. They highlight the relationship between the stage of economic development of a country and its investment position. Empirical verification of these models [Gorynia, Nowak, Wolniak 2007, Gorynia, Nowak, Wolniak 2009, Wysokińska 2008] confirm that Polish economy is currently in the stage characteristic for gradual capital expansion. Increasing international involvement of domestic companies seems thus a natural outcome of the changing structure of economic assets and comparative advantages. Saturation of the domestic market and increasing cost of manufacturing make domestic businesses seek other location advantages on foreign markets. It becomes easier and easier due to largely improved competitiveness of Polish enterprises, which reflects the balance of competitive forces in the economy, and increasing liberalization and openness of world economy.

If a business wishes to effectively grow through OFDI, according to the idea of OLI by J.H. Dunning [1988], three groups of requirements must be fulfilled concurrently. Firstly, the company must have some strong ownership advantages<sup>3</sup>. They will help it remain profitable and competitive on international market despite significant costs and difficulties involved in internationalisation. Ownership advantages may take different forms: financial, technological, organisational, marketing, etc. Their exploitation on international market leaves the company flexible and competitive even when it must manage geographically dispersed units operating in different economic systems and circumstances.

For over twenty years Polish companies have been exposed to the competition of multinational corporations on the domestic market. It seems that the winners have already managed to work out competitive advantages, which let them operate effectively also in the international environment. Not only do they have material, marketing and organisation skills but, in some cases, also technological skills. It is worth highlighting that technological advantages do not have to be equivalent of absolute domination over all other market operators. Strong position in the industry suffices. Few Polish businesses get involved in international competitive struggle in modern high-tech sectors but

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<sup>3</sup> The paper uses the term „ownership advantages” in the meaning of the idea of OLI by J.H. Dunning and the theory of ownership advantage by S. Hymer.

companies representing traditional industries, in which Poland enjoys well established comparative advantages, perform very well on foreign markets.

The second type of advantages necessary for foreign expansion includes internalization advantages. They arise when it is more profitable for a company to have its own unit abroad rather than trade or license a process (or all production) to an independent cooperator (outsourcing). That seems particularly difficult in recent years because of increased international specialisation leading to intense proliferation of outsourcing not only in the service sector but also in manufacturing. However, the advantage of foreign direct investment consists in the reduction of the costs of transaction and the protection of existing ownership advantages (e.g., technology, *know-how*). Even though subcontracting agreements precisely specify the rules of collaboration between the parties, there is always a threat of uncontrolled dissemination of technological solutions<sup>4</sup>. It is also worth stressing that some attention on this aspect of FDI is drawn in the appropriability theory [Magee 1977].

Polish companies, which enter foreign markets mostly to win new customers and increase sales [Karaszewski 2012, Umiński 2009, ss. 103–104], consider retaining their ownership advantages vital. Nevertheless, the reduction of transaction costs seems the most important. The cost of seeking new partners and double-checking their reliability on unstable Eastern markets (Ukraine, Russia), costs of negotiations and the risk involved represent a serious burden. To minimise them, companies often decide to open their own manufacturing or trade branches abroad<sup>5</sup>.

Location advantages, the third element compulsory for successful FDI, concern the attractiveness of selected foreign markets and describe the characteristics of international environment. Such advantages may be linked to the size of the market, its growth dynamics but also to the attractiveness of resources (e.g. raw materials), production factors (e.g. cheap labour), and favourable legal and administrative arrangements (low taxes, financial incentives, administrative support).

Liberalisation and globalisation of the world economy encourage companies to look for new, better locations that can offer more suitable conditions for manufacturing and sales. The advantages consist not only in the access to new markets but also in global differences in prices of factors of production

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<sup>4</sup> It is well reflected in recently renowned case of Apple against Samsung, which was accused of using the design and solutions developed by Apple. That was enabled by the fact that Apple outsourced the manufacturing of its flagship products to Samsung.

<sup>5</sup> In that case OFDI support export of a company which is very desired from the GDP growth perspective.

(mainly labour). By reducing costs, companies may maintain or even improve their profitability and productivity, despite increasing competition, not only on the host markets but also globally [Stempkiewicz 2007, ss. 3–4]. Moreover, the establishment of Special Economic Zones, that favour foreign investors, becomes an important incentive for FDI.

The OLI paradigm is the best known and universally accepted idea, which describes the conditions necessary to start FDI. We must bear in mind, however, that FDI is the most advanced form of internationalisation of companies. Businesses usually start expansion from exports and then, having got better acquainted with the global market, they decide (as a result of various factors) on a more advanced forms of their presence on international markets. The processes are widely described in literature as stage models or behavioural models of internationalization [Johanson, Vahlne 1977; Kłysik-Uryszek, Kuna-Marszałek 2014].

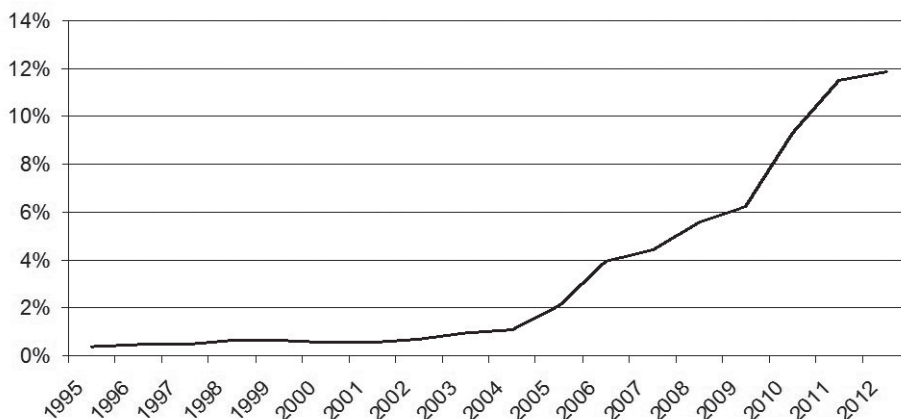
When it comes to the sources of international expansion of Polish companies, network models should be mentioned. They highlight the role of being a part of international network of economic relations and should be analysed taking account of the experiences of Polish companies. The latter relatively often stress the importance of cooperation for the decision on FDI – most often they follow their key collaborator [Umiński 2009] – active involvement into the network of his international links but also the imitation of the market leader.

When analysing outward foreign direct investment originating from Poland, attention should be drawn to the fact that the population of residents of the Polish economy includes not only businesses with Polish capital but also companies with foreign capital, including those owned by international capital groups. A substantial portion of Polish OFDI includes the investment made by foreign-owned companies located in Poland. As suggested by the statistics of the Central Statistical Office (GUS), they account for ca. 60% investment projects classified as Polish FDI [Kłysik-Uryszek 2012]. Polish units owned by multinational corporations embark on further foreign expansion following strategic decisions of the parent company, not based on their own ownership or internalisation advantages. Thus we can hardly assess their expansion based on the criteria applied to businesses with domestic capital, much less experienced in internationalisation, which must seek information about foreign markets, identify their attractiveness and estimate risk on their own. The challenge for them is much bigger than for global firms. Hence their successes may become a better measure of development and international competitiveness.

### Structure of Polish foreign investment in manufacturing

OFDI is a relatively new phenomenon in the Polish economy. Intensified capital exports in the form of foreign direct investment started after Poland's EU accession. Economic downturn has not weakened the tendency, on the contrary, since 2010 a significant increase in the value of Polish OFDI has been observed. Data by the NBP (from the statistics of balance of payments) indicate that at the end of 2012 cumulated value of Polish investment was almost PLN 180 bn and represented less than 12% of GDP – see diagrams 1 and 2.

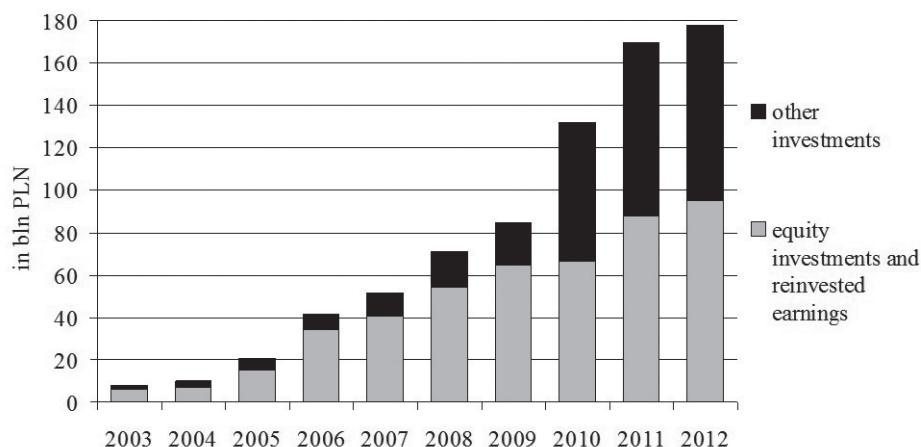
**Diagram 1. OFDI to GDP ratio in Poland for the years 1995–2012**



Source: own calculations on the basis of NBP data (balance of payments)

As for the analysis of the structure of outward FDI of Polish companies we may notice the increasing share of the second type of investment flows – see diagrams 2 and 3. Both of the components rose for the whole period of the study. Equity investments showed relative stable growing tendency (with the exception of 2010, when the increase was quite small), while intracompany loans surged drastically in 2010. It should be stressed however, that it was not only due the real debt flows growth, but to the change in methodology of collecting data. Up to 2009, only the flows between parent company and its direct subsidiary was considered FDI. Since 2010 all loans granted among related companies within a capital group have been considered FDI. The values shown on diagram 2 and 3 show the extent to which Polish entities served as international lenders.



**Diagram 2. OFDI stock of Polish companies**

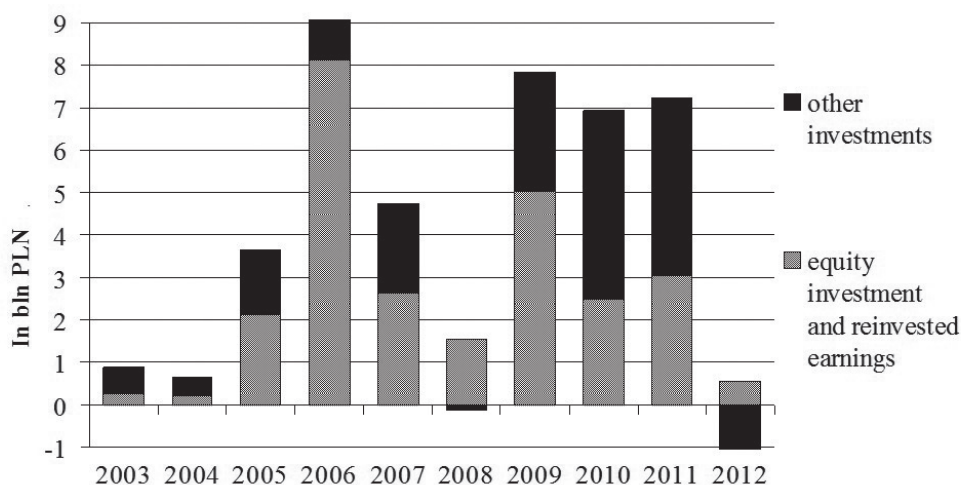
Source: own calculations based on the NBP data, <http://www.nbp.pl/home.aspx?f=/publikacje/pib/pib.html>, access on 15.12.2013.

Between the years 2003–2005 investment of industrial companies accounted for ca. 18% of the total Polish OFDI. In the following 4 years, the share dropped to 10%–15% to increase substantially, even up to 38% in 2010. In 2012, industry generated about 35% of total OFDI stock of Polish companies. However, it is worth stressing that throughout the entire period the share of industrial companies in total primary investments of Polish entities did not exceed 10% until 2009, then it skyrocketed to 32% in 2010 to drop again in the following years down to 17% in 2012. On the contrary, the share in intracompany loans was much above the average. That might mean, that the industrial companies were more often the source of loan capital for other overseas members of a capital group than in the service businesses.

In the period 2003–2011 annual foreign direct investment flows of Polish industrial companies were very much volatile – see diagram 3. The lowest values were recorded for 2003, 2004, and 2008 while the highest for 2006. Remarkably, after the drop in investment in the crisis year 2008, already in 2009 the expansion of Polish companies reached almost PLN 8 bn. This confirms relatively strong position of Polish companies and not severe course of the crisis. Also in the following years, 2010 and 2011, high investment values were retained accompanied by significantly higher share of other investment in the flows of industrial OFDI. It proves again that, paradoxically, in the times of economic crisis Polish economy became the source of loan capital for related

foreign entities. Already in 2012 the capital returned to Poland, which may provide evidence of improved financial standing of the borrowers and the end of crisis.

**Diagram 3. OFDI (flows) of Polish industrial companies**



Source: own calculations based on the NBP data, <http://www.nbp.pl/home.aspx?f=/publikacje/pib/pib.html>, access on 15.12.2013.

Throughout the whole period covered by the study, investments of manufacturing companies represented the major part of investment of the industrial sector. Mining played a minor role, similarly to construction (with the only exception of 2011 when construction companies invested in total more than PLN 2.7 bn). Operators dealing with electricity and natural gas generation and distribution were a bit more active. Since 2007 they invested respectively ca. PLN 1 bn, PLN 300 mio, PLN 900 mio, PLN 1.2 bn, and PLN 500 mio.

In most of the years subject to the analysis, foreign equity investment were the main constituent of FDI flows in industrial companies. Gradually, also intracompany loans were increasing. Their share in the last two years of the period significantly exceeded 50% and it was higher than the FDI of service operators in the entire period. Not only manufacturing companies were involved in such loans (as presented in detail in Table 1) but also other industrial companies operating in the field of mining, distribution of energy or construction.



2006	<b>TOTAL</b>	<b>8 883.6</b>		<b>123.3</b>	<b>7 271.9</b>	<b>488.2</b>	<b>33.5</b>	<b>223.8</b>	<b>49.1</b>	<b>-116.9</b>	<b>111.4</b>
	A	91.1%		26.8%	103.5%	42.1%	-22.4%	58.8%	45.0%	0.4%	78.2%
	B	8.9%		73.2%	-3.5%	57.9%	122.4%	41.2%	55.0%	99.6%	21.8%
2007	<b>TOTAL</b>	<b>3 636.8</b>		<b>138.1</b>	<b>1 221.8</b>	<b>1 332.4</b>	<b>108.3</b>	<b>81.1</b>	<b>88.5</b>	<b>7.6</b>	<b>77.5</b>
	A	66.8%		208.8%	48.1%	91.7%	64.6%	122.3%	34.9%	2.6%	79.4%
	B	33.2%		-108.8%	51.9%	8.3%	35.4%	-22.3%	65.1%	97.4%	20.6%
2008	<b>TOTAL</b>	<b>1 480.8</b>		<b>762.4</b>	<b>-128.3</b>	<b>-176.9</b>	<b>139.3</b>	<b>444.4</b>	<b>98.7</b>	<b>-25.9</b>	<b>477.0</b>
	A	88.4%		60.2%	-132.8%	455.2%	62.6%	81.9%	51.9%	-0.8%	127.4%
	B	11.6%		39.8%	232.8%	-355.2%	37.4%	18.1%	48.1%	100.8%	-27.4%
2009	<b>TOTAL</b>	<b>6 486.7</b>		<b>3 986.6</b>	<b>732.9</b>	<b>361.6</b>	<b>150.6</b>	<b>220.3</b>	<b>99.5</b>	<b>189.4</b>	<b>463.2</b>
	A	70.5%		89.4%	33.4%	62.2%	5.4%	74.7%	1.0%	-0.1%	31.0%
	B	29.5%		10.6%	66.6%	37.8%	94.6%	25.3%	99.0%	100.1%	69.0%
2010	<b>TOTAL</b>	<b>4 574.1</b>		<b>1 139.9</b>	<b>898.6</b>	<b>761.5</b>	<b>716.0</b>	<b>-527.9</b>	<b>243.0</b>	<b>981.8</b>	<b>244.2</b>
	A	48.2%		135.3%	-31.6%	56.3%	23.9%	-8.3%	14.5%	0.9%	37.5%
	B	51.8%		-35.3%	131.6%	43.7%	76.1%	108.3%	85.5%	99.1%	62.5%
2011	<b>TOTAL</b>	<b>3 780.5</b>		<b>130.9</b>	<b>-1 261.3</b>	<b>977.0</b>	<b>-318.3</b>	<b>859.4</b>	<b>222.1</b>	<b>-697.1</b>	<b>3 258.8</b>
	A	41.9%		139.5%	66.4%	95.4%	-46.5%	49.3%	21.6%	0.0%	20.6%
	B	58.1%		-39.5%	33.6%	4.6%	146.5%	50.7%	78.4%	100.0%	79.4%

2012	<b>TOTAL</b>	<b>352.3</b>		<b>212.1</b>	<b>513.5</b>	<b>1113.7</b>	<b>306.3</b>	<b>-1087.6</b>	<b>350.0</b>	<b>-839.2</b>	<b>852.2</b>
	A	270.9%		5.9%	-46.6%	38.3%	22.4%	-25.7%	15.0%	0.0%	12.1%
	B	-170.9%		94.2%	146.6%	61.7%	77.6%	125.7%	85.0%	100.0%	87.9%

A – equity investment and reinvested earnings

B – other investment (i.e. intercompany loans)

Amounts preceded with „-“ mean the capital has been withdrawn back to Poland. If the total for individual industries in the line TOTAL exceeds the value for total manufacturing, it means capital in other industries (not listed in the Table) has been withdrawn back to Poland.

Source: own calculations based on the NBP data, <http://www.nbp.pl/home.aspx?f=/pub-likacje/pib/pib.html>.

Total annual foreign direct investment of manufacturing companies ranged from less than PLN 1 bn in 2003 and 2004 to almost PLN 9 bn in 2006. Its major part was generated by food processing, refinery, chemical, metal and automotive companies as well as by the manufacturers of rubber and plastic products, machinery and equipment, and radio-TV and telecommunication equipment. At the beginning of examined period, the debt investments prevailed. It may not be surprising, as we notice that there were already strong representation of MNE's in Poland and originally owned Polish companies were not strong enough yet. After a few years of UE accession, when Polish owned companies gained more international experience, this tendency switched – majority of OFDI were primary investments. As the crisis arose, the debt component prevailed over the equity one again. This is an evidence that Polish economy remained relatively sustainable during the economic crisis and the enterprises were strong enough to support the foreign affiliates. In particular, we can observe the following cases:

- Food processing companies have intensified their expansion mainly since 2008 and invested to increase their manufacturing assets abroad. Food industry is relatively little vulnerable to economic slowdowns and the investments are predominantly horizontal ones. There exist little capital links among entities within a multinational (if so, they are related more to tax issues)
- Manufacturers of coke, refined petroleum products (which are Polish companies representing traditional branches with strong competitive advantages) were involved in relatively costly investment projects also aimed at increasing their assets. Only in 2008 capital was withdrawn to Poland in place of intense loan granting activities addressed to related companies in capital groups.
- Investment of chemical companies was diversified and it is hard to identify any single trend. It may be due to the fact, that in Poland co-exist many MNE's entities together with Polish enterprises and each of them represent different market attitude.
- Investors who manufacture rubber and plastic products were the most active especially in the last years of the studied period. For them, intense loan expansion in 2009-2010 was followed by the withdrawal of capital in 2011. It should be noticed, however, that there is strong representation of MNE's in Poland in that branch, so the debt flows may result from the need to recapitalize foreign entities suffering from crisis.

- Manufacturers of metal and metal products got engaged mostly in increasing their manufacturing assets abroad (primary investment). The trend got reversed only in the last two years of the period;
- Manufacturers of machinery and equipment and radio, TV equipment were mainly the sources of loan capital for overseas affiliates, which can be explained by strong representation of foreign owned entities in Poland. This branch represent medium to high tech industry, so most of originally Polish companies are not strong enough, to compete successfully on international scale. That is why they do not engage in own OFDI yet.
- At the beginning, automotive companies acted as lenders, in the period 2006–2008 they made some primary investment, however, since 2009 intra-group loans dominate again. Similarly to the above mentioned medium and high tech equipment, automotive industry have a strong representation of MNE's and their FDI are dependent to the strategic decision of a parent company.

### Concluding remarks

Despite a multiple theoretical and empirical literature on foreign direct investments, little attention is paid to the equity and debt breakdown of the FDI flows. While examining the scale of OFDI that distinction should be taken into account, as these two main types of flows have different sources. The first one mostly reflect the competitive advantages and strength of a company, while the latter is often a strategic decision of a parent company reflecting the flexibility of MNE's on international market or the support granted by home entities to their overseas affiliates in need. This flow, however, does not intensify international expansion understood as the increase in ownership of manufacturing assets abroad.

The investigation of Polish OFDI showed that primary investments (i.e. equity investment and reinvested earnings) account roughly for a half of the total OFDI volume. In the manufacturing sector (which represented about 35% of total OFDI) the situation was less favourable – the percentage of equity stock amounted only to about 25%-30% in the examined period. Moreover, equity investments originated largely from Polish-owned companies and represented so called “traditional” industries (in which Poland has comparative advantage). The latter type of investments (secondary, non-equity capital flows between related companies within capital group, mainly intercompany loans) appeared mostly in these industries, which had attracted the most IFDI stock

to Poland (motor equipment and transportation, machinery, rubber and plastic industry), and therefore can be attributed to foreign-owned multinationals which operate in Poland. These investments resulted from relatively strong financial position of the entities located in Poland and their ability to finance related branches and subsidies of the MNE's operating in other countries.

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## **Managers' Consideration about Behavioural Factors that Influence their Decision Making in Liquidity Management**

### **Abstract**

The paper presents selected fragment of the outcomes of qualitative research led by the author. It concerned factors influencing decision-making in liquidity management, associated with human traits (human as an acting person of such choices) both in terms of mental processes' characteristics peculiar to the entire human species (features of human mind) as well as the specific attributes of individual decision-makers. The aim of the study was to discover how managers perceive determinants of liquidity decision-making process, basing on their professional experience, and whether in their consideration on the subject had ever appeared the determinants related to the person of the decision-maker.

**Key words:** behavioural economy, decision making, decision traps, liquidity.

### **Introduction**

In recent years, interrelatedness between psychology and economics or finance seems to intensify. From scientific point of view these relation became a fact and economists are no longer entitled to ignore findings made by psychologist in the area of economics [Zaleskiewicz 2011]. However, the question is how fast and how deep these discoveries are absorbed by the real economy, i.e. the people who actually take financial decisions every day. They should be the first to benefit from this knowledge, so that they could make more effective choices in their daily work.

Unfortunately, it seems that there is still a substantial discrepancy between what has already been discovered by the science and what practitioners actually use while making decisions. The research carried out by the author appears to prove this thesis. Hitherto, education of financiers has been conducted in the spirit of *homo economicus*, which means that people are fully rational, maximizing their own benefit, having unlimited cognitive abilities and the constant risk preference [Jones 1999]. Therefore, it is established on so-called normative model [Tyszką 2010]. While assessing financial standing of the enterprise and making the right choices based on that, the achievements of the classical theory of finance cannot be overestimated. However, enriching trainings for managers with contents related to psychological economy and behavioural finance would bring many benefits. Not only would managers know how to properly use the “tools” provided by the neoclassical theory of finance, but also what to pay a special attention to or what to avoid, when it comes to their way of evaluating available data, so as not to be subject to some psychological traps [Tyszką 2000]. While the newly educated managerial cadres can be somehow made to develop their knowledge of behavioural finance by including such issues into the compulsory curriculum, the managers who have already completed their basic education might not have such an opportunity. Hence, it is vital to verify if managers have ever wondered how they make their decisions, what factors they take into account in their choices and whether among these factors there are also the behavioural ones. All this is to be able to provide them with tailored educational offer that would broaden their perspective about decisions-making process with the output of behavioural economics and behavioural finance.

The paper presents a fragment of outcomes relating to qualitative research, led by the author. A subject of the study were factors influencing decision-making in liquidity management, associated with human traits (human as an acting person of such choices) both in terms of mental processes’ characteristics peculiar to the entire human species (features of human mind) as well as the specific attributes of individual decision-makers. This study was an attempt to discover how managers perceive determinants of decision-making process concerning liquidity management for the company they worked for, and whether in their consideration on the subject had ever appeared the determinants related to the person of the decision-maker, including so-called “decision traps” [Korzeniowska 2011], in other words – “inadequacies or errors in assessing, appearing due to various reasons” [Tyszką 2000]. The findings about which traps occurred during the liquidity-related decision-making process and about the respondents’ awareness of the

existence of such phenomena as well as their impact on the final decision's quality, were presented in other publications of the author [Korzeniowska 2013].

## Method

This paper presents findings giving response to the following research questions:

1. Had managers ever in the past been considering how they took decisions related to liquidity, how the process of making such decisions looked like and whether in their decision-making they had ever taken into account the impact of human traits (retrospective approach)?
2. What were the respondents' beliefs about determinants of liquidity-related decision-making process presented in the course of the interview ('current' approach, induced reflection)?

It needs to be underlined that in both above mentioned cases, particularly important was to select such respondents' statements that presented characteristics associated with the person of decision maker.

The research was done by means of qualitative method and a technique was in-depth interview.. According to the methodological recommendations on qualitative methods, interviewees were diversified in terms of age and gender. There were people who had economic background (education, courses, trainings), with a minimum of 2-year work experience, who made decisions related to liquidity of the company (CFO, chairman, chief accountant etc.) and were employed in companies from different industries, of different sizes, operating in the province of Lodz minimum of three years. Thus, the group of respondents comprised both young people (but with more than 2-year experience), middle-aged and elderly of both sexes, working for small, medium and also large commercial companies (including public companies listed on the Stock Exchange) having their seat in Lodz, Aleksandrow Lodzki, Konstantynow Lodzki, Zgierz, Pabianice, Lask, operating in various industries such as construction, textile, metallurgy, heating technology, hydraulics, clothing, furniture, beverages etc. There were owners, CEOs, CFOs and chief accountants with economic university education or managerial trainings (including MBA, Chartered Accountant, a doctorate in economics).

The gathered data included 36 interviews (recorded using the tape recorder) complemented with notes reflecting non-verbal reactions of the respondents.

## Results

The presentation of the results has been divided into two parts giving response to research questions. Hence, first part describes interviewees' beliefs, opinions, remarks on a manner in which they made their liquidity-related decisions that have arisen before the interview (retrospective approach). Second part concerns their reflections evoked during the interview (induced reflection).

### ***Managers' existing consideration on a manner in which they make liquidity-related decisions***

For a question on whether the respondents have ever wondered how, under what influence, they made decisions concerning liquidity, three types of responses were identified: disaffirmative, emotional and affirmative with a meta-reflection ingredient.

First type consisted in "No" responses, sometimes even expressed in a very decisive manner. However, the respondents were trying to add a brief comment or rudimentary explanation. None of them gave a comprehensive justification for the absence of such reflection. For instance the answers were:

*No, I've never thought about it* (resp. 33, older, M, chairman, resp. 28, older, M, CFO),

*I've not been wondering... I think it goes spontaneously* (resp. 11, older, M, owner).

As far as second type of reactions is concerned, the interviewees very often revealed their bewilderment or even embarrassment with such a question. Judging by their responses it was not a subject of their previous consideration. Yet, they did not want to admit it. They might have thought that they should have an opinion on that matter and therefore they immediately tried to give an answer by enumerating the factors that, in their opinions, might have affected such decisions. Respondent's 1 answer illustrates such an attitude:

*No... err... What influences it...? Learning, being sorry several times...* (resp. 1, older, M, owner)

On the other hand, for respondents who admitted to have had such a reflection, it turned out that it concerned mainly economical, financial or business aspects.

*Yes. When a transaction is profitable this has a direct impact on the liquidity and the lack of liquidity problems in the long run.* (resp. 6, older, M, chairman)

In contrast, a pre-existing consideration about the impact of the decision-maker's characteristics on liquidity-related decisions was rather fragmented. Respondents did not elaborate on such issues in their statements:

*Nowadays, people are driven by intuition. In many cases, mainly by this...* (resp. 12, older, F, owner)

*What else... ingrown features learned also count... or intuition...* (resp. 22, older, M, chairman)

*In addition, [...] enjoying the risk, because it is very individual attribute* (resp. 24, older, F, chief accountant)

The last type of responses might have suggested that the respondent not only had considered decision-making determinants of liquidity management, but also had had a meta-reflection on its quality and usability. The author of below quoted opinion frankly admitted that such thoughts had not been striking him on regular basis, but in his opinion it was rather positive. He believed that "having no thoughts" was sometimes better for him because he could thereby protect himself from excessive stress.

*I sometimes wonder but... to be honest, it is not that I make comprehensive analysis of "what would be if" ... It's not what I do every day. If I did it my stress level would be so high that I could not make it.* (resp. 30, M, older, chairman)

Only guiding questions stimulated respondents to recall if they had ever considered the impact of the decision-maker on the choices concerning liquidity. An expression analysis showed that the collectivity divided in roughly equal parts to the group that admitted having such a pre-consideration and those who, despite hints given by the interviewer, consistently argued that they had never thought about it before. Interestingly, people who declared this kind of consideration admitted that it appeared due to some negative circumstances, liquidity problems. One may say that this kind of unpleasant or difficult situations motivated respondents to perceive themselves as a factor having an impact on the liquidity of the company. Below an example of this phenomenon:

*Yes ... it's been so many years since I've been here ... when I have blue devils or some doubts, in the family or somewhere, then in the company you also foul up a lot of things.* (resp. 11, older, M, owner)

To sum up, the respondents did not have an established attitude of what factors influence their liquidity decisions. If such thoughts ever appeared in their professional life, they were mostly of economical or financial nature. Rarely did they see the impact of a decision-maker on such decisions. However, if such reflection took place, it came to their minds mainly in problematic situations, for example when liquidity was in danger. Still, the precise analysis of the interviewees' utterances suggests that they were more likely to search for the causes of a particular situation rather than have more general reflection on the patterns that occur in solving liquidity troubles.

### **Respondents' beliefs about liquidity-related decision-making process induced by the interview**

When it comes to the way in which respondents described their standpoint about determinants that affect company's liquidity, it turned out that most of their attention was focused on financial or economical aspects. First of all, the respondents drew attention to the issues that, according to the theory of finance, directly shape the liquidity, i.e. cash (*The clue is to have some money on hand, everything depends on this.* resp. 1, older, M, owner), inflow of receivables (*We have a very strong policy of cash collection* resp. 2, older, F, vice-president, *First of all cash collection and refraining from granting trade credit.* resp. 24, F, older, chief accountant; *We offer discounts to our customers, to induce them to pay earlier*" resp. 13, M, older, chairman), inventory (*... inventory turn-over or negotiation of the stock and buying under contracts . The basis is to buy raw materials for one production cycle only, not to store them.* resp. 24, F, older, chief accountant) payment of liabilities (*My first question always is "What about our payments? We need to assure our suppliers.* resp. 7, M, older, owner, *...financing by delaying payments to our suppliers* resp. 30, M, older, chairman), loans (*[ ... ] and, depending on that I take action... I decide whether to make use of credit. These are mainly such decisions...* resp. 33, M, older, president), taxes (*There are also technical things like paying taxes etc., You must pay in strict time limits.* resp. 17, M, younger, CFO) and the current data and ratios (*It depends on all liquidity ratios, then you compare these data with the standards for the industry.* resp. 28, M, older, CFO).

In addition, respondents also mentioned some strategic aspects, *inter alia* swiftness of operation (*Efficient and fast work. I have to watch over a day and every minute of the day.* resp. 1, M, older, owner), company reputation (*All the time you need to take care of your image.* resp. 36, F, older, chairman), diversification of activities and customers (*I deeply appreciate the fact that we work with a large group of customers. We do not have a customer who has more than 5 % of our sales and this is a huge success.* resp. 2, F, older, vice chairman) or investments (*...the second thing is that the company is worse than a lover. The idea is that the company needs a lot of money on development, investments, to catch up with different technologies. And relatively low profitability is always a problem. You have to choose whether to earmark the money for current needs or to invest in something that will bring value in the future.* resp. 20, M, older, owner).

In their statements also appeared such issues as total economic situation (*Well... first of all it is general trend on the market* resp. 17, younger, M, CFO; *An important factor in decision-making is what is happening in the economic*



*environment.* resp. 32, M, younger, CFO), branch of industry (...*What is the future of a sector, whether something need to be changed, or you need to reorientate somehow...* resp. 15, F, younger, co-owner), the sector (*Third thing is sector. Whether it is rather a retail sector or, let's call it, receivable-like, with deferred payment.* resp. 26, M, younger, CFO), but also knowledge about the market, customers, competition (*Well, but for sure... knowledge of the company we cooperate with.* resp. 12 K, the older, owner, *What is the market demand for certain products that we sell, whether we have a new product we can introduce and compete with others, because others have worse products, or our competition is not so strong...* resp. 34, M, older, owner).

The respondents also emphasized that time is a very important factor in their decision-making process. Some of them even regarded it as the most important determinant of their decisions (*First of all it's time, I always see to the dates when the expenses must be done. This is the most important factor... When we have cash inflows and outflows. This is the factor that determines all actions, in all respects.* resp. 26, M, younger, CFO).

In conclusion, the respondents enumerated the most important factors of economic and financial nature that could exert an influence on decisions related to liquidity. Moreover, they did not confine themselves only to those which, by financial science, were considered to be direct determinants of current liquidity (inventories, receivables, liabilities, cash). They expanded their view by the role of competition, market situation, reputation etc. It seems, therefore, that from economical and financial perspective, they had quite a broad notion of factors that might influence their liquidity-related decisions.

As for determinants associated with decision-maker, relevant findings have been aggregated in the following areas:

- what factors that inhere in decision-maker, influenced liquidity choices made by the respondents,
- how significant this impact was,
- whether the respondents were trying to control this influence,
- how they evaluated such an impact (positively or negatively).

In reference to the factors connected with decision-maker, the respondents perceived as particularly important experience and intuition (by some of them also called "sense" or "spontaneity"). Adequate examples below:

*These are especially wisdom and experience. Financial textbook knowledge is not so important* (resp. 10, M, older, owner)

*Decisions are not based only on the liquidity ratios' analysis but on intuition and years of experience. There is no time to analyze the liquidity.* (resp. 25, M, older, owner)

*In a small company you need to act intuitively. First of all, you need to have a sense to know what is worth your involvement and what is not. (resp. 7, M, older, owner)*

*I think it is rather a spontaneity and some experience than any financial knowledge. (resp. 11, M, older, owner).*

Furthermore, the interviewees also mentioned some decision-maker's features, which they believed to have had an impact on liquidity decisions. These were:

- common sense: [...] *in a company like this, a common sense and simply ground-base handling with this ...and to react to current situations (resp. 33, M, older, chairman);*
- human nature (attitude towards money, weaknesses, limitations): *I think...first of all it's the nature of a man. I know people, maybe they are not in majority, tight-fisted people... It is human mentality. When he has to spend some money he is becoming sick. (resp. 10, M, older, owner);*
- naivety, gullibility: *I was naive, I was promised a lot... and then they pulled out. If I could go back in time, I would play out in a different way. While doing business you have to assume that people cheat. You do not call it 'cheating' then but you say that someone just 'took the advantage of the situation'. So it is important what kind of person I am. It affects company's standing and its liquidity. I'm too gullible... (resp. 30, M, older, chairman);*
- being unsystematic, lack of diligence: *My lack of conscientiousness, lack of regularity. It bothers me. I should require more from myself. But I can afford it because no boss can control me or slap me down for this. Of course I have a strong motivation to avoid errors. On the other hand, no whipping post exists to make me do something... check 5 times, or if I make a mistake I'll be fired. (resp. 3, F, older, owner);*
- carelessness: *I would prefer to spend all the money for some superfluous gadgets. I behave like a kid. When something cool appears on the market, I'd like to have it. (resp. 25, M, older, owner);*
- rigidity, being resistant to external pressure: *It seems to me that the way of making decisions, the nature of these decisions is highly dependent on the personality, on psyche, on some human's hardness. Like in this proverb: when you have a soft heart, then you need to have a hard ass. (resp. 14, M, older, owner)*
- having strong motivation when things complicate and avoiding the routine: *I am such kind of a person and I have such a personality that difficult situations stimulate me. It has a very big impact on how I act,*

*how I manage and what decisions I make. When everything goes well I'm falling into stagnation, in a routine which I'm afraid of. I do not fear any troubles.* (resp. 31, F, older, chairman)

- ability to stay calm, stress resistance, clear-mindedness: *...what all the candidates for a job write in their CVs – the ability to cope with stress ... which means to stay calm, have a common sense and keep your mind clear...* (resp. 28, M, older, CFO)
- perseverance, consistency and self-discipline: *Perseverance has also a huge impact. In business if someone does not have perseverance he won't make it. There are different situations, some are better, some are worse... and this is normal, it's business. What counts is discipline, going straight to the point and not being discouraged by failure.* (resp. 19, M, younger, owner);
- prompt decision-making: *It happens every day. For example, signing a contract... somebody would shilly-shally for 2 weeks, rethink 5 times, ask 10 lawyers and he would not do that in the end. And I am fast decision-maker. My decisions are not always good, but that's the way it is.* (resp. 19, M, younger, owner).

It needs stressing that the respondents were talking not only about their strengths (common sense, perseverance, determination, tenacity) but also about weaknesses (gullibility). However, they meant mainly personal qualities. None of them did refer to some specific characteristics typical for human's mind functioning. Apparently, the respondents did not have knowledge about this kind of phenomena. Therefore, they could not express their opinions on their role in decision-making, including the financial liquidity sphere.

As regards opinions on the importance of factors associated with the decision-maker while taking liquidity decisions, they varied. Some interviewees believed that the individual attributes of the decision maker did not have any significance for the quality of the final decision.

*No, no, no. My whim has nothing to do with it. There's neither randomness nor mood.* (resp. 32, M, younger, CFO)

*My decisions are never made on the spur of the moment. I can go beyond that. I can find a balance among these things. How am I feeling? No!* (resp. 2, F, older, vice president)

There were also more moderate beliefs that certain factors affected decision-making process, while others did not (*Yes ... Well, maybe how I'm feeling at the moment has no impact on that, but what kind of a person I am, what way of thinking I have, what forecast is in my head, which solution I choose... it's important...* resp. 1, M, older, owner).

Opinions stating that all above mentioned factors had a significant impact on decisions also eventuated.

*I think this has an impact. Sometimes I'm guided by impulse, need of the hour. I'm aware that it may be not so rational, but I give myself the right to make mistakes.* (resp. 3, F, older, owner)

*Well... for sure. Some personal features are also important. Some people make decisions quickly, they want to take a chance, others prefer to think, to get less but have something for sure. Yes... personal features are very important... They cannot be ignored. No way!* (resp. 15, F, younger, co-owner)

As to the question of controlling the impact of human features on decisions made by interviewees, they presented bipolar attitudes. Some of them declared that they tried to control this influence:

*From my experience... I don't let any of my moods, troubles at home and so on, penetrate my work. I try terribly to always separate it. I think it has no influence on my decisions.* (resp. 26, M, younger, CFO)

While others didn't see such a need at all:

*No... It's just me and that's all. The only thing I try to do is to calm down when I know that nothing more can be done. So... I do it to help myself and to survive somehow.* (resp. 31, F, older, chairman)

Regarding the respondents' evaluation whether it was good or bad that personal characteristics influenced liquidity-related decisions, the majority of them perceived the impact of mood as rather negative. As far as other aspects are concerned, there was no unequivocal view. To illustrate this, let's quote an opinion given by one of the respondents. In his point of view, the personal features' impact on decisions was not something indisputably negative. It was difficult to predict whether this impact was positive or not, because it constituted an individual management style. And the only aspect to be assessed here was whether certain management style was more or less relevant for the entire organization, and not in terms of "good – bad".

*For sure. I think we're burdened with some set of genes, and as a consequence we have some set of features and it is difficult to control them. I think that there's no need to control them, because they create some kind of a style. Our knowledge and what kind of people we are, form our management style. The only question is whether this style, in a certain environment, is more appropriate. I separate it completely. I'm like a machine. I can say that. I was given a task and I have to fulfil it.* (resp. 4, F, older, chairman)

The above statements and reactions proved that respondents stimulated by the course of interview recognized the impact of decision-maker's personal features on choices connected with liquidity. Moreover, the interviewees widely

perceived such determinants as meaningful. The list of factors mentioned by the respondents comprised: experience, intuition, character (defined as the attitude towards money), common sense, faith in one's own luck, risk aversion, perseverance, the ability to stay calm in difficult situations. What seems intriguing, they discredited a frame of mind as a determinant of their decisions. When it comes to the question whether respondents tried to reduce decision-maker's individual features' influence on their decisions, the answers were double-sided. Some admitted to have made attempts to minimize such an impact, others presented an opinion that controlling their human traits was not necessary. They were not able to unambiguously judge whether the occurrence of such an effect was beneficial or not.

### Conclusions

The analysis of the interviews revealed that respondents, in the course of their career, devoted little attention to the problem of determinants influencing decisions concerning liquidity of companies for which they worked. Some respondents, however, seemed to be embarrassed with a lack of such consideration, what may denote that they did not consider this beneficial. Nevertheless, this requires further analysis, because such a reaction could also result from other reasons. The question about what kind of determinants exerted an influence on their decisions had not been a subject of their professional reflection. It was not a crucial problem to be solved from their point of view. If such a consideration ever emerged it appeared mostly in alarming situations or during some interim liquidity crisis. So it was not a general deliberation but it concerned specific situations. Even then, respondents did not take into account the role of decision-maker, but financial, economical or legal factors. Their opinions focused primarily on the subject (not the person acting) of decisions, which is liquidity itself, and certain circumstances affecting it such as payment terms, cash, market trends, industry development etc.

The fact that respondents connoted mainly financial associations does not seem surprising. Still, interviewees' answers provided evidence that professionals were - in a way - 'closed' for other possible determinants of their choices, especially including those concerning decision-maker. Only the interview itself induced respondents to recognize the importance of the subject of choices or even to consider it significant.

It should be also highlighted, that factors enumerated by the respondents did not relate to mechanisms identified by behavioural economics or behavioural finance such as availability heuristics [Kahneman, Tversky 1982], anchoring heuristics [Remus, Kottelman 1995], illusion of control [Langer

1975], framing effect [Tversky, Kahneman 1981], locus of control [Thomas, Sorrensen, Eby 2006], conjunction effect [Mellers, Hertwig, Kahneman 2001] and many others, which are an essence of these newly emerging domains. This means that respondents were not aware of the existence of such phenomena. Their remarks touched upon some general ‘human-related’ issues like experience, common sense, intuition and so on. As a result, being unfamiliar with “decision traps” makes managers prone to cognitive biases that may affect their decisions. Moreover, lack of awareness that such mechanisms occur, entails lack of necessity to extend the knowledge in this field. It is hard to imagine that someone wants to learn about the things he did not know they existed.

In view of the above, the thesis put at the beginning of that paper, stating that a level of absorption of scientific discoveries by practitioners (managers, directors, headset) is still low, seems to validate. Thus, making managers informed about the existence of certain “human mechanisms” and extending their professional knowledge through trainings, courses or seminars would bring many benefits and improve the quality of their decisions.

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## Efficiency of Using Research and Development Expenditures at Voivodship Level

### Abstract

One of the most important criteria dividing countries on developed and developing is technological level of the economy which is a derivative of R&D. We showed in the article, that only a rather small group of voivodships was characterized by a full efficiency of converting the expenditure into effects. Low values of efficiency indices pay attention for all ineffective provinces. It won't be possible to say about none of them, that it found near the efficiency border which accompanied by large differences between decision making units.

The non-radial DEA model showed that both the internal expenditures (in converting into the thousand residents) and the personnel employed in the R+D work are not used efficiently and what's more in the considerable degree wherein a first of said inputs research units managed by a little more effectively.

**Key words:** research and development, DEA method, efficiency, non-radial efficiency.

### Introduction

One of the main criteria for dividing countries into developed and developing ones is technological development of their economies resulting from carried out research and development activity (also referred to as R&D). A more developed economy is characterized by greater saturation with modern technical means of production and smaller share of simple jobs based on the use of labour force.

A characteristic feature of research and development activity in Poland is strong participation of the state budget through financing universities and research institutes. Eventually, however, businesses have started to take part in that process, including those in the group of small and medium enterprises. In total, all entities managing or supervising research projects have quite considerable financial and human resources at their disposal.

Nevertheless, there is still a substantial difference in the volume of expenditures made on research and development between Poland and highly developed countries. Disproportions in the use of expenditures can also be observed at the level of Polish regions. This article will point out the voivodships which are more efficient in using research and development expenditures than other voivodships of the country. It will be proved how significant are departures from optimum efficiency by using the DEA method.

The R&D potential is usually assessed by means of indices and/or measures expressed as absolute and relative values. In order to prove the proposed hypothesis, the study will use the DEA method which compares all objects with one another and enables to indicate those most efficient taking into account a whole set of factors. Thus, the method is an interesting supplement to traditional analyses.

### **Research and Development in Poland – Statistical Analysis**

We will quote a definition of research and development activity applied by the Polish Central Statistical Office (CSO). The research and development activity comprises creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of that stock of knowledge to devise new applications. It includes three types of research: basic research, applied research and experimental development [Science and Technology in 2012, p. 34].

In Poland R&D activity is conducted by various research institutes (including those of the Polish Academy of Sciences – PAS), higher education institutions and entities associated with enterprises, i.e. carrying out scientific and developmental works along with their basic activity. The dynamic development of research activity in Poland is, in our opinion, hampered by: limited cooperation of the industry with purely scientific institutions, including universities, and great dependence of the latter on state subsidies which, compared to the other EU countries, are not generous, which will be further discussed in the article.

“The Report on the Biggest Research and Development Investors in Poland” [p. 7] says that: “the problem of investing in knowledge (...) has been

a challenge the economic policy has not been able to cope with for over 20 years". The authors of the report mention the following causes of the situation: unfinished transformation and overregulation of academic and research sectors as well as the lack of links between companies with Polish and foreign capital. Moreover, the applicable Accounting Act hinders monitoring R&D expenditures at the national level [p. 20].

Although the dynamics of investments made by enterprises in Poland is indeed above the EU mean [The Report on the Biggest (...) p. 12], it exceeds by only 0.2 percentage point a rise in public expenditures. Therefore, the authors of the report draw a conclusion that no significant structural changes in the relationship between public and business investments should be expected in the immediate future. Despite the inflow of funds from the EU, Poland fell into the lowest group in respect of assessed innovativeness in Europe.

Contrary to appearances, it is not only Poland that contends with insufficient R&D investments. In the 2012 ranking of businesses with the biggest investments in R&D, EU companies accounted for less than 30% of the first hundred. Certain consolation can be found in the fact that world ranking leaders invest in Poland, which provides access to state-of-the-art technologies and enables to shorten the distance between Poland and the most developed countries.

Interesting conclusions about the involvement of Polish companies in research and development activity were reached by Adamczyk [Adamczyk 2013]. Based on the results of his research it can be pointed out that the share of unsuccessful R&D projects did not exceed 10% of all undertaken ones. The risk of failure was lower for large enterprises. It is difficult to decide whether it resulted from lesser experience of small and medium enterprises or their greater propensity for risk. The author of the study also drew attention to the duration of projects. It transpires that over 75% of projects were completed within up to 3 years with smaller enterprises deciding on shorter-term projects.

An important feature of R&D activity is the period of the economic utility of results. It is affected by the field of research, competition of other enterprises or scientific activity of e.g. a university. The longer the period of the economic utility of research results, the easier to discount the risk of a project. The prospect for making a profit of research results in years to come may be a risk reducing factor in the opinion of potential investors.

According to the theory of finance, a reward for a higher investment risk should be a higher rate of return. As already mentioned, investment in R&D ought to be considered very risky. On the other hand, results of the quoted

polls indicate that the possibility of making a loss on research and development activity was not high. Half of the firms obtained the rate of return not exceeding 7.71%. The highest rates of return were received by the largest entities.

The most prominent feature of research and development projects is a large (about 50%) share of expenditures on staff remuneration as carrying out research activity entails, first and foremost, the need to employ appropriately qualified personnel. The higher the qualifications, the higher expectations about salaries.

The results of those people's work are not necessarily only tangible but also intangible assets whose value is quite measurable. Thus, the recent considerable interest in the protection of copyright, patents, trade marks etc. It sometimes, however, takes a grotesque form, called patent trolling, i.e. registering with patent offices everything which allows to make a profit of selling a licence in the future.

The report "Science and Technology in 2012", published in 2013 and prepared, as the above-mentioned survey, by the Statistical Office in Szczecin, describes the situation of research and development activity in Poland in 2012 taking into account its financing and achieved results. The report states that domestic expenditures on R&D were at PLN 14.4 billion in 2012, which meant a 22.8% increase as compared to 2011. R&D intensity, i.e. the share of domestic expenditures in GDP, was 0.9% (as compared to 0.6% in 2011). Poland ranked nineteenth in the EU in terms of that index, which was 2.7 times lower than that for the whole EU. R&D expenditures in Poland accounted for 1.29% of expenditures of the entire EU. Hence, it can be observed that the importance of such activity in Poland is increasing but there is still a large distance between Poland and the most developed European countries. That, regrettably, is the result of many years' neglect of financing science.

The share of enterprises in expenditures was 37.2%, the share of the state sector (PAS and research institutes) was 28% and that of higher education institutions – 34.4%. Taking into consideration solely public universities, R&D expenditures were made by 79.5% of them. Among non-public higher education institutions, the percentage was 31.7%. Such a vast disproportion should not come as a surprise as non-public higher education institutions focus mainly on teaching. Research and development activity, as more risky and expensive, is usually limited by them to a level necessary to obtain accreditation. The rest of expenditures were incurred by non-commercial institutions (0.4%).

The main source of research financing was funds from the state budget (51.4% of total domestic expenditures). They accounted for 79.9% of all funds in the state sector and 72.1% in the case of higher education institutions. In turn, that share was at 11.2% in the business sector.

The number of individuals employed in research and development activity was 139.7 thousand in 2012 (a rise of 3.8% as compared to 2011) including 103.6 thousand science and research workers (an increase of 2.9% as compared to the preceding year). 72.6% of all individuals working in the R&D sector were employed in state and local government institutions with the share of science and research workers at 76.3%.

For many years now the basic group of research and development staff in Poland have been employees of public universities. In turn, they very strongly depend on state funds, which is difficult to be considered beneficial in the longer term. The deteriorated situation of the state budget usually results in cuts whose victim is usually science. A solution would be to extend cooperation with the industry but that still remains limited.

In 2012 there were only 5.8 individuals employed in R&D per 1000 of the total working population. That rate is 12.2 in the EU, which puts Poland very low in the ranking. It should also be emphasized that the share has remained at a similar level in our country for a few years now.

Non-commercial, local government institutions etc. account for a tiny percentage of R&D employment. In the business sector, 97.4% of all the employed in R&D worked directly in enterprises. As it can be seen, enterprises tend to use their own resources. In the state sector, the percentage was even higher – 99.3% of all the employed. In public higher education institutions, 92.1% of workers were concerned with research and development. The rest were employed with non-public higher education institutions and entities collaborating with enterprises.

Polish enterprises usually transfer technologies through the purchase of licences. 3.6% of companies decided to do that as compared to 1.6% which counted on research and development activity. The purchase of a licence is a faster and easier way of improving technological development of production. Polish companies' expectations of making a profit as quickly as possible do not create favourable conditions for time-consuming research.

In 2012, the Patent Office of the Republic of Poland received 4,410 applications concerning domestic inventions (an increase of 13.7% as compared to 2011) and awarded 1,848 patents for domestic inventions (7.1% less than a year earlier). Moreover, 941 domestic utility models were submitted for registration (940 in 2011). Protection rights were granted for 514 models (a rise

of 3.2% from year to year). Among applications filed with the Patent Office, 47.7% came from PAS scientific units, research institutes and higher education institutions.

In 2012, considerable regional diversification was observed in Poland in terms of research and development activity. Relevant indices tended to be the highest for the Mazowieckie voivodship. It was where 33.6% of direct budgetary subsidies went. In the territory of the Mazowieckie voivodship, there were 693 entities, i.e. one-fourth of all research active entities and 39.5% of the total number of scientific and R&D ones. In the second in the ranking, the Śląskie voivodship, there were 335 such entities, while in the lowest ranking Lubuskie voivodship – only 37.

The share of research and development expenditures in GDP varied substantially among voivodships: from 0.17% for the Lubuskie to 1.37% for the Mazowieckie voivodships. Expenditures *per capita* in the Lubuskie voivodship were PLN 55, whereas in the Mazowieckie voivodship they reached PLN 887 with the national rate at PLN 303.

However, the biggest share of funds from the business sector was noted in the Podkarpackie (65.4%) and Śląskie (44.6%) voivodships. The Mazowieckie voivodship ranked seventh in that respect. Hence, it used budgetary financing and EU funds to an extent resulting in decreased interest in obtaining money from other sources. The rate for the whole Poland was 32.3%.

Similarly to domestic expenditures, also employment in the research and development sector varied markedly among voivodships. Certainly, the biggest number of individuals worked in the Mazowieckie voivodship – as much as 30.3%. The rate of personnel employed in research and development per 1000 of the total working population was, thus, 11.2% for that voivodship. The second in that ranking, the Małopolskie voivodship, showed a rate of 8.7%, while it was 5.8% on the scale of the whole country. The lowest in the ranking were Świętokrzyskie (0.6%) and Lubuskie (0.9%) voivodships. Interestingly, the share of science and research personnel in the total R&D personnel in 2012 was the highest in the Lubuskie – 91.4% and Podlaskie – 90.7% voivodships. The Mazowieckie voivodship with its 65.4% ranked even below the country's average of 73.9%.

Voivodships also differed in results measured by numbers of submitted patent and utility model applications. The largest numbers of applications per 1 million of the population came from the Mazowieckie (184.2 patent applications), Dolnośląskie (157.1) and Łódzkie (130.5) voivodships. The smallest numbers of applications originated from the Świętokrzyskie (54.9 patents), Podkarpackie (48.4 patents) and Lubuskie (45.9) voivodships. Additionally, it

should be taken into consideration that 17.4% of applicants had their registered offices in the territory of the Mazowieckie voivodship.

### Description of Expenditures and Results

The concept of efficiency is not new to economics but it is usually presented as a relationship of an individual result to an individual expenditure. In the 1970s (compare: Charnes, Cooper, Rhodes [1978]) the concept called Data Envelopment Analysis (DEA) appeared.

The method is based on the relationship of the weighted sum of expenditures and the weighted sum of results determined separately for each of analysed units, the so called Decision Making Units (DMUs). It maximizes technological efficiency of a given unit on the condition that efficiency measures have been standardized for all units of a set. The method does not require knowing the functional relationship between results and expenditures. In turn, it is assumed that volumes of expenditures and results are above or equal to zero, but for each decision making unit at least one expenditure and one result exceed zero.

Efficiency can be optimized through decreasing expenditures to receive present results or increasing results with expenditures used at the present level. We have chosen the first solution.

The efficiency of each unit  $\theta$  is determined by the radial distance from the empirical frontier of technological capability, the so called best practice frontier. It is graphically illustrated by a piecewise linear function matching the most efficient decision making units. The efficiency of units on the curve is 1. Units below the curve are predominated by objects on the curve and their ratio is below 1. The Charnes-Cooper transformation allows to reduce the problem to a linear programming task, which facilitates its solution.

From the point of view of returns to scale, there are several types of models. The CCR model<sup>1</sup> assumes constant returns to scale and a measure it allows to calculate is called total technical efficiency. If we assume variable returns to scale, the BCC model<sup>2</sup> is applied, whose solution serves to determine purely technical efficiency – how much smaller expenditures may serve to achieve the same results.

If there is a difference between efficiency for constant and changing returns to scale, the efficiency of scale can be determined. It is calculated as follows:

<sup>1</sup> From the names of its authors: Charnes, Cooper, Rhodes.

<sup>2</sup> The name comes from the names of the model's authors: Banker, Charnes, Cooper.

$$e\_s\_vrs = \frac{e\_crs}{e\_vrs}$$

where:

$e\_s\_vrs$  – efficiency of scale;

$e\_crs$  – technical efficiency derived from the CCR model;

$e\_vrs$  – purely technical efficiency derived from the BCC model.

If the efficiency of scale equals 1, a given decision making unit is efficient in relation to the scale of expenditures made. Otherwise ( $e\_s\_vrs < 1$ ), no efficiency in relation to the scale of expenditures is observed. It should, however, be kept in mind that formula (1) does not provide information on whether those are increasing or decreasing returns to scale. In order to obtain that information, the NIRS (Non Increasing Returns to Scale) model has to be calculated. Solving the NIRS model enables to receive value  $e\_nirs$  to be used to determine the area of returns to scale according to formula:

$$e\_s\_nirs = \frac{e\_crs}{e\_nirs}$$

Value  $e\_s\_nirs$  equal to 1 means that a unit is in the area of increasing and below 1 – in the area of decreasing – returns to scale.

Comparing the four above-described measures (i.e.  $e\_crs$ ,  $e\_vrs$ ,  $e\_s\_vrs$  and  $e\_s\_nirs$ ) offers the description of efficiency of a given unit. A DMU for which each of the above measures equals 1 is characterized by an optimum combination of expenditures and results.

In practice,  $\theta$  is 1 for more than one unit; hence there are several ranking leaders. In order to unambiguously determine the most efficient unit, we use the so called super-efficiency. The name comes from the fact that its values may be above 1. It is calculated by means of the modified CCR model. The optimum value of the objective function in the expenditure-oriented model with super-efficiency is interpreted as the minimum expenditures of competitors required to achieve results of a given decision making unit.

A classical approach to the DEA method assumes uniform efficiency of all expenditures or results. That assumption can, however, be abandoned and the so called non-radial efficiency can be computed, which assumes that partial



efficiency in respect of a given expenditure or result may be different for each expenditure (result) with partial efficiency remaining radial [Guzik 2009, p. 201]. The calculated optimum  $\hat{\theta}_{no}$  index expresses, firstly, efficiency of unit  $o$  in respect of expenditure  $n$ . Secondly, it determines the percentage to which expenditure  $n$  should be decreased so that unit  $o$  achieves one-hundred-percent efficiency in respect of that expenditure. The mean value of optimum partial efficiency indices for all expenditures is the so called Russell efficiency.

From the point of view of stability of calculations, the ratio of the number of decision making units to the number of expenditures and results is important. It is recommended [compare: Guzik 2009, p. 29] to seek the following relationship:

$$J > \max(P \cdot R, 3(P + R))$$

where  $J$  is the number of DMUs,  $P$  – the number of expenditures and  $R$  – the number of results. Thus, considering 16 voivodships, the list of expenditures and results should be considerably limited.

Another factor affecting determination of the set of expenditures and results is correlations which occur among them. In the DEA method, low correlations between expenditures and results are preferred as high correlations result in a degenerated optimum solution.

Keeping the above in mind, the set of expenditures we use in the DEA method includes an index expressing the volume of domestic expenditures on research and development per 1000 of the population. Hence, we take into account the fact that voivodships differ significantly in their numbers of inhabitants. Another expenditure we have selected is personnel employed in that sector in 2012 according to voivodships. Results we have chosen are the number of granted patents and the number of granted utility models, also separately for each voivodship. Our calculations have used the CSO data.

### **Empirical Analysis of the Efficiency of Research and Development Activity**

We have already proved that voivodships differ markedly in human and financial resources they allocate to R&D activity. The greatest concentration of research units, personnel etc. is observed in the Mazowieckie voivodship. The other voivodships lag far behind. However, high concentration of resources does not automatically translate into their fully efficient use. That is the fundamental conclusion drawn from analysing indices of efficiency shown in Table 1.

**Table 1. Indices of efficiency and returns to scale**

Voivodship	e_crs	e_vrs	e_s_vrs	e_s_nirs
Dolnośląskie	0.7358	1	0.7358	0.7358
Kujawsko-Pomorskie	0.6887	0.7612	0.9048	1
Lubelskie	0.3142	0.3664	0.8575	0.8575
Lubuskie	0.1990	1	0.199	1
Łódzkie	0.4002	0.4584	0.8730	0.8730
Małopolskie	0.3378	0.3712	0.9100	0.9100
Mazowieckie	0.3994	1	0.3994	0.3994
Opolskie	1	1	1	1
Podkarpackie	0.5345	0.5903	0.9055	0.9055
Podlaskie	0.5837	0.7011	0.8325	1
Pomorskie	0.2336	0.2626	0.8896	0.8896
Śląskie	1	1	1	1
Świętokrzyskie	1	1	1	1
Warmińsko-Mazurskie	0.5692	0.6247	0.9112	1
Wielkopolskie	0.4825	0.5414	0.8912	0.8912
Zachodniopomorskie	0.5609	0.5900	0.9507	0.9507

Source: own calculations.

Surprisingly, assuming constant returns to scale, the most efficient turned out to be solely the Opolskie, Śląskie and Świętokrzyskie voivodships. What is more, they clearly predominated over the other decision making units. The highest ranking inefficient the Dolnośląskie voivodship, was markedly below the best practice frontier. Half of voivodships showed indices not exceeding 0.55. The lowest result was achieved by the Lubuskie voivodship. An index equal to 0.199 indicates that a voivodship should use, on average, about 80% less of held resources in order to achieve present results. Still considering constant returns to scale, other voivodships appeared to be very inefficient too. Interestingly, that group included the Mazowieckie voivodship where such results as the present ones would be obtained through reducing expenditures by as much as 60%. It is a surprising observation if we

remember how many financial and human resources are concentrated in the Mazowieckie voivodship.

The DEA method allows to compute the so called benchmarking formulas for inefficient units. A benchmark is understood as an indication of specific efficient units whose example ought to be followed in order to improve present efficiency. When feeding expenditures and results of model decision making units into the formula, we will receive new optimum technology values for an inefficient unit.

For example, a benchmarking formula for the CCR model determining an optimum technology oriented at the Lubuskie voivodship is composed of 9% of technology applied in the Opolskie voivodship and 8% of technology used in the Świętokrzyskie voivodship. That means that research entities of the Opolskie and Świętokrzyskie voivodships would be able to achieve results of the Lubuskie voivodship with the domestic expenditures index per 1000 of the population at PLN 13.5 instead of PLN 68.4 and with personnel employed in R&D activity at 220 instead of 1,118 individuals.

An optimum technology oriented at the Mazowieckie voivodship would also use the technology of the Opolskie and Śląskie voivodships. In that case an optimum value of domestic expenditures would fall to the level of PLN 368.6 per 1000 of the population (empirical value of PLN 921.6). Moreover, it would be sufficient to employ 11.8 thousand instead of 37.2 thousand individuals with received results equal to the present ones.

Calculations of the model with variable returns to scale (column  $e\_vrs$  in Table 1) differ from those of the CCR model. The number of efficient voivodships went up to six, including the same three as before. The Mazowieckie voivodship turned out being efficient this time. Half of voivodships were characterized by an index not exceeding 0.66, but predomination of the efficient DMUs still remained strong. 13 voivodships were not efficient in relation to the scale of incurred expenditures (see the  $e\_s\_vrs$  values in Table 1). Out of those thirteen, four voivodships: Kujawsko-Pomorskie, Lubuskie, Podlaskie and Warmińsko-Mazurskie, were in the area of increasing returns to scale. In their case, an additional unit of expenditure would produce more than a unit of result. Among voivodships characterized by decreasing returns to scale attention should be paid to the Zachodniopomorskie voivodship being close to the efficiency frontier. In turn, the Opolskie, Śląskie and Świętokrzyskie voivodships were model ones irrespective of an assumed model.

Results in Table 1 indicate a low level of efficient use of expenditures in the whole country. Only a few voivodships were fully efficient, while a large group

was in the area of decreasing returns to scale. That, regrettably, indicates considerable wastage of expenditures in the R&D sector in Poland.

**Table 2. Super-efficiency indices**

Voivodship	se_crs	
	absolute	relative
Świętokrzyskie	2.8859	1
Śląskie	1.7747	0.6145
Opolskie	1.4846	0.5144
Dolnośląskie	0.7358	0.2550
Kujawsko-Pomorskie	0.6887	0.2386
Podlaskie	0.5837	0.2023
Warmińsko-Mazurskie	0.5692	0.1972
Zachodniopomorskie	0.5609	0.1944
Podkarpackie	0.5345	0.1852
Wielkopolskie	0.4825	0.1672
Łódzkie	0.4002	0.1387
Mazowieckie	0.3994	0.1384
Małopolskie	0.3378	0.1171
Lubelskie	0.3142	0.1089
Pomorskie	0.2336	0.0809
Lubuskie	0.1990	0.0690

Source: own calculations.

Table 2 shows super-efficiency indices (*se\_crs*) for the expenditure-oriented CCR model. They are provided as absolute and relative values compared to the highest of them. Let us remind that, in that model, values of the objective function are interpreted as the minimum expenditures of competitors required to achieve results of a given decision making unit. The other voivodships, within the framework of the common optimum technology, would have to incur almost twice (to be precise 1.89 times) as high expenditures in order to obtain results of the Świętokrzyskie voivodship. Competitors of the weakest

of efficient voivodships, the Opolskie voivodship, would have to make 48% higher expenditures than those that actually occurred in that voivodship to receive its results.

Yet again, we can observe strong predominance of efficient voivodships over inefficient ones. It appears, however, that there were also considerable differences among units at the efficiency frontier. Efficiency of the second in the ranking, the Śląskie voivodship, represented slightly more than 60% of the Świętokrzyskie voivodship's efficiency, while it was about 50% for the Opolskie voivodship. Even vaster disproportions can be seen when comparing inefficient voivodships with the Świętokrzyskie voivodship. For the Lubuskie voivodship, relative efficiency was as low as 7%.

The classical approach to the DEA method assumes uniform efficiency of all expenditures or results, whereas in the non-radial model partial efficiency may be different for each expenditure or result. Then the model's objective function is the mean of partial efficiency indices. Such analyses are useful in determining which expenditures were efficiently used for a given decision making unit.

Table 3 shows optimization results for the non-radial expenditure-oriented CCR model. Column *e\_nr\_crs* contains arithmetic mean of partial efficiencies provided in two consecutive columns.

Voivodships efficient in the classical CCR model remained efficient in the model with non-radial efficiency, which is interpreted as full efficiency in terms of each expenditure. Although values of indices for inefficient voivodships changed as compared to their values in Table 1, previous relationships among them remained. Hence, the least efficient was still the Lubuskie voivodship, while the predominance of efficient voivodships became even slightly stronger.

**Table 3. Results of model with non-radial efficiency**

Voivodship	e_nr_crs (mean)	Domestic expenditures per 1000 of the population	Personnel	Coefficient of variation
Dolnośląskie	0.6924	0.7358	0.6489	0.3511
Kujawsko-Pomorskie	0.6840	1	0.3680	0.6320
Lubelskie	0.3121	0.3279	0.2962	0.7038
Lubuskie	0.1822	0.1609	0.2034	0.7966
Łódzkie	0.3946	0.4940	0.2951	0.7049
Małopolskie	0.3376	0.3297	0.3454	0.6546
Mazowieckie	0.3578	0.3994	0.3161	0.6839
Opolskie	1			
Podkarpackie	0.4963	0.7347	0.2579	0.7421
Podlaskie	0.5354	0.7744	0.2964	0.7036
Pomorskie	0.2064	0.1731	0.2397	0.7603
Śląskie	1			
Świętokrzyskie	1			
Warmińsko-Mazurskie	0.5135	0.6908	0.3362	0.6638
Wielkopolskie	0.4823	0.4478	0.5167	0.4833
Zachodniopomorskie	0.5460	0.5609	0.5310	0.4690

Source: own calculations.

Voivodships inefficient in the non-radial sense are inefficient in respect of at least one expenditure. Such a situation occurred in the Kujawsko-Pomorskie voivodship, which proved to be efficient in terms of domestic expenditures but inefficient in terms of personnel with that inefficiency being very high.

The other voivodships did not efficiently use both the expenditures. For half of them partial efficiency in respect of domestic expenditures per 1000 of the population did not exceed 0.5, whereas in terms of personnel it did not exceed 0.32. Therefore, it can be inferred that financial resources were man-

aged better than human resources. It was a general trend rather than a strictly applicable rule as, for a few voivodships, efficiency in terms of personnel was higher. As for the partial efficiencies themselves, their remarkable diversification reflected considerable wastage of expenditures.

The last column in Table 3 shows variation coefficients of partial efficiencies. They were used to assess the degree of harmonization of expenditures for specific voivodships. They all displayed values (low values of variation coefficients are considered not to exceed 0.1), which indicated severe lack of expenditures' harmonization. Expenditures were the least harmonized in the Lubuskie voivodship but even for the Dolnośląskie voivodship the coefficient was still high.

Low efficiency values observed in models with radial efficiency did not, thus, have one cause as the reason for substantial differences among voivodships was the inefficient use of both financial and human resources.

### Summary

It should be conceded that the R&D sector situation in Poland is not good. Although research and development expenditures have been rising for several years, both the pace and amounts do not still allow to significantly reduce the distance between our country and a majority of EU countries or some other countries around the world. The manner of financing does not help either, as the bulk of funds comes from the state budget, while enterprises prefer to buy ready-made solutions abroad instead of financing research projects in Poland. Cooperation between business and science is also insufficient.

A characteristic feature of research and development activity in Poland is its strong concentration. Most research units, personnel and domestic expenditures are located in the territory of the Mazowieckie voivodship. Contrary to appearances, it is not beneficial to research and development activity. Firstly, other regions lose due to their slower development and lack of access to results of R&D activity. Secondly, the concentration of resources in one region by no means results in their efficient use.

As we assumed in the introduction only a small group of voivodships was characterized by full efficiency of transforming expenditures into results (in terms of DEA). That was especially noticeable in the model with constant returns to scale. Moreover, the Mazowieckie voivodship did not use its expenditures efficiently at all. Anyway, low values of efficiency indices for all inefficient voivodships were clearly visible. None of them might be considered close to the efficiency frontier, which was additionally accompanied by large differences between decision making units themselves.

The non-radial DEA model proved that neither domestic expenditures (per 1000 of the population) nor personnel employed in R&D activity were efficiently used, to a large extent, with the former managed a little more efficiently by research units.

Certainly, it should be kept in mind that the DEA method is based on a subjective selection of expenditures and results. Changes to just some of them may produce changes in the group of efficient units. In our case, the applied models were consistent in terms of the high level of R&D inefficiency in a majority of voivodships and substantial disproportions among them.

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## Stock Exchange Recommendations and Economic Realities

### Abstract

The aim of this paper is to present the impact of stock recommendations on the prices in the context of excessive optimism heuristic. The main goal of the conducted analysis is to show that investors on the Warsaw Stock Exchange seem to ignore the economic information that comes with the recommendation report. Also, as the analyzed recommendations are set in the specified economic conditions, authors would like to show that reports are biased with excessive optimism.

The research of the structure of recommendations was issued for the biggest companies of the Polish market listed on the Warsaw Stock Exchange from 2009 to 2012. The investigation showed that the ambiguity of the creation methods of analytical reports and differences in valuation of companies causes subjectivism in analysts' assessments, which leads to heuristic effects. According to the authors, the structure of reports and their specificity shows that excessive optimism is an important factor in creation of stock exchange recommendations.

**Key words:** stock recommendations, capital market, behavioral finance, Warsaw Stock Exchange, excessive optimism heuristic.

**JEL classification:** G11, G14, G16, G15

## **Introduction**

The stock exchange recommendations published by brokerage houses are an important part of the capital market. The report of this type is the opinion of the analyst representing financial market institutions, intended to assess the situation of the company in a professional way and to provide customers of these institutions with comprehensive information, allowing gaining advantage over other market participants. Analyst issues recommendation after a detailed assessment of the company, but the implemented methodology makes the recommendation his subjective opinion. At the time of publication on the market, the report is fully opened and accessible for anyone.

The impact of recommendations on the quotations of companies has been the point of interest of researchers since the beginning of the twentieth century. Depending on the market and type of security, the obtained results of research on the impact of recommendations seem to be different. The available studies results show that there are different types of approach to the problem of the recommendations impact. Especially their noticeable effect on prices or lack thereof is observed.

The research problem set by the authors was an attempt to confirm that stock recommendations have an effect on the stock prices. Secondly they would like to show that excessive optimism heuristic is an important element in the process of constructing recommendations by the analysts. Behavioral context of conducted analyses results from the fact that the target prices and the recommendations themselves are determined not only by mathematical calculations. Despite a number of established procedures and schemes used in the valuation process, the calculations are still based on subjective assumptions and judgments. It should also be noted that final results of the forecasts are adjusted by analysts in a subjective way, sometimes based on erroneous assumptions resulting from heuristic. This paper is an attempt to answer the question is there a connection between the publication of the reports and the significant price changes. Second goal is to show that analysts issue recommendations avoiding slightly the negative macroeconomic data. The performed analyses were based on records from the Polish capital market and the empirical data was obtained from the Warsaw Stock Exchange.

## **Previous studies**

First research on the impact of recommendations on price changes was conducted in 1934, when the first paper by Cowles was published, which characterized the effectiveness of this type of analysis in the stock market.

Cowles came to the conclusion that most of recommendations do not provide valuable information which would give an advantage to its holder. In subsequent years recommendations were analyzed multidimensionally, which resulted in a series of studies in which the authors often came to different conclusions. In studies published so far two equally strong trends have been observed that in contradiction to each other confirm and deny the effectiveness of the analysts' reports in supporting the construction of investment strategies.

Other research trends in this area are analyses comparing the impact of recommendations on stock prices depending on the segment to which the assessed company belongs. Another area is the increased effectiveness of positive recommendations. Liu, Smith and Syed [1990] in their studies showed the impact of recommendations on prices at the date of the publication of the recommendation. In the last two decades, valuable research related to recommendations has been conducted by Stickel [1995] who argued that the position of the company which is issuing recommendations is important. In his research he received a variety of results for different institutions - that means that investors do not treat all recommendations in the same way. However, the analyses made by Walker and Hatfield [1996] showed that investors do not have additional benefits coming from the use of recommendations. In a study made by Clark et al. the recommendations issued in 1995–2001 were tested. The researchers tried to prove an excessive optimism presented by their authors. The results do not confirm the existence of the curvature, representing optimism. Barber [1998] showed that positive recommendations result in higher and negative in lower rates of return. The results were compared with market benchmarks, which indicated a significantly higher rate of return in the case of the strategy, in which recommendations were used as a source of fundamental information about companies.

Jaffe and Mahoney [1999] were the first to draw attention to the problem of the cost of obtaining a recommendation as a factor diminishing the benefits. According to them, if these costs are taken into account, investors do not achieve additional gains from recommendations. Juergens [1999] showed the results indicating that the publication of recommendations makes additional changes in prices and makes it possible to achieve above-average returns. The researcher conducted research on 3679 recommendations for the IT and related sectors and analyzed recommendations and information coming directly from the companies. Ho and Harris [2000] in their analyses showed that investors who use recommendations treat them only as a basis for further analyses and confirm them additionally using their own, individually se-

lected economic measures. Their trust in the accuracy of recommendations is limited. Aitken [2000] analyzed the Australian Stock Exchange in the period 1992–1998. He showed that recommendations published by real estate agents cause changes of prices of companies associated with the construction industry on the day of publication. Barber and his research team [2001] analyzed the NYSE. They found out that short-term strategies based on the recommendations provide profits to investors, although their profitability may be severely limited by the cost of frequent transactions.

Azzi [2005] analyzed the distortions of prices of financial instruments caused by recommendations made by European analysts. The information is often provided in the wrong context and character of recommendations is adjusted to the market trend. This means that investors interpret recommendations freely if it is negative in the upward market; it has lower impact on the stock price. If it is positive in the downward market, the situation is similar. Fang and Yasuda [2005] in their research demonstrated the usefulness of recommendations and substantially higher profitability of investments, which are carried out on the basis of recommendations. The research conducted by Chang and Chan [2008] showed that the impact of recommendations depends on a brokerage house which they were issued by, on the company which they are related to, its size and age. Loh and Stulz [2009] observed over-average change of prices after the announcement of recommendations, particularly in the case of companies being in the media spotlight. Their research proves that about  $\frac{1}{4}$  of recommendations has no impact on the quotations while the impact of about 10% of them is very large.

The presented research results show the interest of researchers for recommendations. These reports are analyzed multidimensionally and their impact is examined in different contexts. This paper is an additional voice in the debate, which should provide the data and arguments confirming subjectivism of analysts responsible for preparing recommendations.

### **Research methodology**

The research presented in this paper was based on a sample of 786 stock exchange recommendations published between 2009 and 2012. They are related to the largest companies quoted on the Warsaw Stock Exchange, which belong to the WIG20 index, as of May 2012. They were issued by 31 both Polish and foreign brokerage houses. It is worth mentioning that all recommendations are available free of charge, and thus can be used by any investor interested in their content.

The reports in the sample were grouped according to various criteria which allowed the structural analysis of the content of the publication, the segment of companies and institutions publishing the reports.

The research was divided into several key steps:

1. The first step was to describe the analyzed sample. Authors used a several statistical measures to make the analyzed group as a whole and its subgroups more clear in its structure. The used measures will help in inference about the context of the published reports. The authors expect that describing the types, target prices and dates in the context of macroeconomic data will help to prove that the excessive optimism is deeply rooted in the recommendation preparation process.

Due to the different terminology used by various brokerage houses, the contents of reports were unified, so that in the final form five main groups of reports were taken into consideration: sell, reduce, neutral, accumulate, buy.

Additionally, the growth potential arising from the report is the value calculated according to the formula:

$$P_w = \frac{Cd - Cz}{Cz} \times 100\%$$

Where:

$P_w$  – growth potential

$Cd$  – target price

$Cz$  – closing price on the day of publication

In a situation when the report appeared on the day on which there was no trading session, the closing price from the closest possible day before the appearance of the report is used for calculations.

2. The second step was focused on assessing the publications in the context of economic conditions in Poland in the period 2007–2012. Reference was made to a number of basic economic indicators, in this case: GDP (y/y), unemployment rate, inflation (y/y) and industrial production (y/y). This was aimed to show the general macroeconomic context of the report publication.
3. Finally, authors tried to find if there is a connection between the recommendation publication and the price change after it. In this term, two investment horizons were taken into consideration: 5 days after the publication and 30 days after it. Authors claim that if there is any

reaction for the report, it is noticed in a short time after its release. We should also consider the fact that the information doesn't spread immediately so we can't take into account time horizons like few hours after publication or even one day.

In the assumed investing horizons, authors have checked the correlation between the growth potential and the price change.

There are a lot of factors that have an effect on the price change and because of that, it is very difficult to measure the price change that is associated only to the stock recommendation. Authors would like to assess if there is abnormal movement connected with the publication and that is why, the price movement should be cleared out of normal distortions. To achieve that, authors decided to reduce all the price changes of the standard deviation in the considered horizon. The action taken is of course imperfect, but it should filter the strong signals that can be considered as connected with the publication of the report. The surplus over the standard deviation will be assessed in the described way in the following research. Authors hope, that the econometric estimations will prove that there is a significant link between reports and the price change.

### Research results

In the first step it is necessary to look at the basic grouping of recommendation reports, which was made in the research. After the harmonization of types of recommendations, they were divided, first in a simple way, taking into account only the type of report and then more precisely, including additionally the publishing institution and the company the report is related to. The simplified division is shown in Table 1 below and detailed one in tables 2 and 3 in the Annex.

**Table 1. Number of reports divided by type**

	accumulate	buy	neutral	reduce	sell	Sum
<b>Number of publications</b>	<b>97</b>	<b>268</b>	<b>268</b>	<b>62</b>	<b>91</b>	<b>786</b>

Source: own elaboration

It is not difficult to notice that a significant part of the analyzed recommendations are the reports having positive expression. There are 365 positive reports, that is “accumulate” and “buy”, representing more than 46% of the sample, while the number of negative ones, that is, “reduce” and “sell”, is 153, or just over 19%. This means that there are twice as many positive recommendations as negative ones. This tendency was observed by researchers dealing with this issue in other markets worldwide. It is worth noting that the neutral analyses represent more than 34% of the total. So it is necessary to investigate what is the reason for such a big group of ambiguous analyses. Analyzing a simple information coming from such structure of reports it could be assumed that 268 of the evaluated companies promise such a slight change in the value that brokers refrain from expressing a clear opinion on whether to buy or to sell. It is, however, worth looking at the range of prices for different types of recommendations that is the minimum and maximum price that determined issuing a specific type of report. For the analyzed sample they are presented in Table 4.

**Table 4. Limits of growth potentials for the analyzed groups of recommendations.**

TYPE OF REPORT	MIN	MAX
<b>buy</b>	1,22%	133,39%
<b>accumulate</b>	2,12%	44,57%
<b>neutral</b>	-18,65%	35,24%
<b>reduce</b>	-20,73%	9,43%
<b>sell</b>	-58,33%	1,37%

Source: own elaboration.

It is easy to see that the growth potential limit values at which the recommendations of the specific type were issued are very ambiguous and in extreme situations can be inconsistent with reports coming from other institutions. First of all, a big difference in assignment the type of recommendation to the estimated target price between individual analysts and brokerage houses can be seen. What is more, there are reports suggesting a reduction, or even selling at a target price that is significantly higher than the price on the date of publication. Interesting is the fact that despite the issuance of reports in five categories their ranges overlap to such an extent that we can find the reports “sell” with a higher growth potential than the minimum for the rec-

ommendation “buy”, which suggests an extreme methodological dissonance between different analysts preparing reports. For these reasons, suggesting oneself by the final content of the report, formulated in a final statement, virtually eliminates its usefulness for the objective assessment of the analyzed company. Of particular interest seems to be the group of neutral recommendations, which span of growth potential contradicts the assumption that the predicted stock price change is low. The span in this group is nearly 54%, and the minimum and maximum values very clearly exceed the thresholds for recommendations “reduce” and “accumulate”. In this context the medians and standard deviations observed in each group of recommendations should be analyzed (Table 5).

**Table 5. The medians and standard deviations of growth potentials for the analyzed groups of recommendations.**

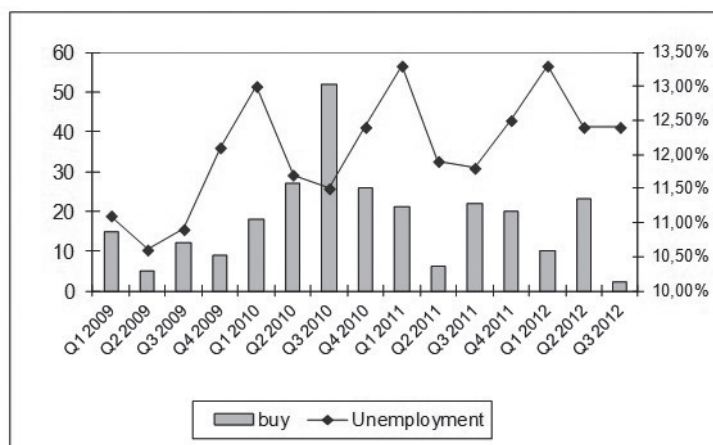
TYPE OF REPORT	MEDIAN OF GROWTH POTENCIAL	STAND. DEV. OF GROWTH POTENCIAL
<b>buy</b>	20,46%	13,17%
<b>accumulate</b>	11,76%	7,61%
<b>neutral</b>	3,24%	6,83%
<b>reduce</b>	-9,74%	5,13%
<b>sell</b>	-14,29%	9,60%

Source: own elaboration.

Gathering the information above it is worth to assess it in the context of the macroeconomical environment. First of all it should be noted that the period of time considered in the research is very interesting due to the changing of the long term trends in the Polish and global economy. The situation between 2009 and 2012 showed a deep decrease in the market and also the opposite Stock trends in years 2011/2012, but the macro data seem that time was not promising. Below, diagrams show the main economic figures in the context of the occurring stock recommendations:

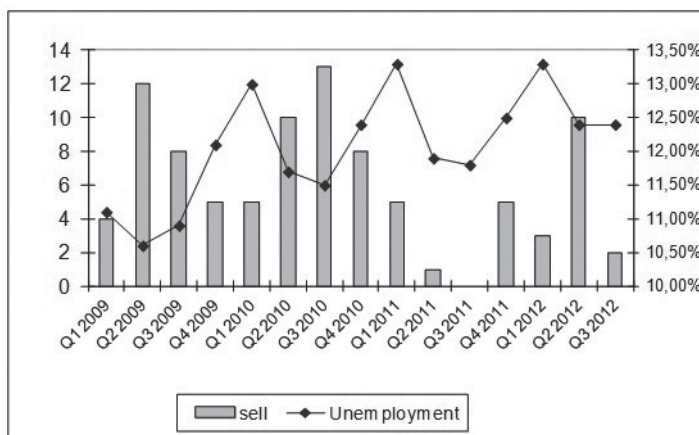


**Figure 1. Unemployment rate and recommendations “buy”**

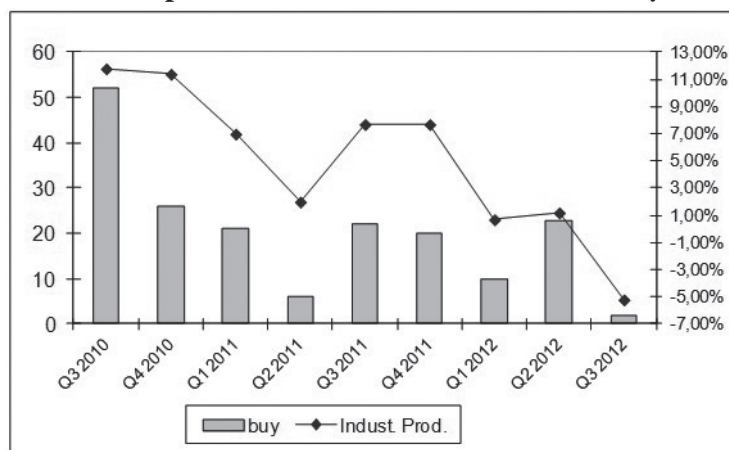


Source: own elaboration.

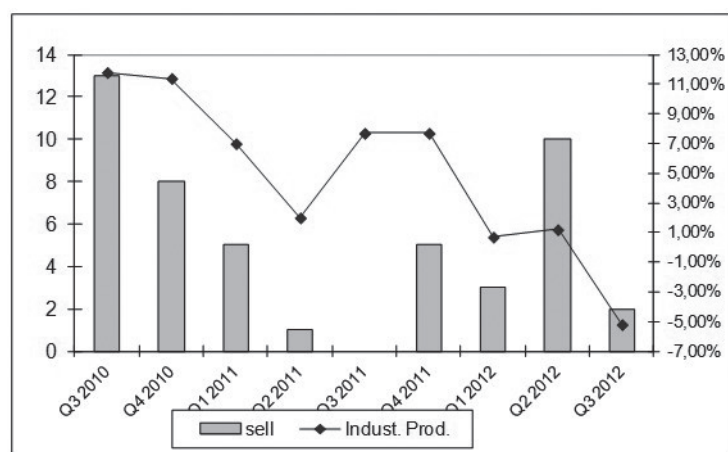
**Figure 2. Unemployment rate and recommendations “sell”**



Source: own elaboration.

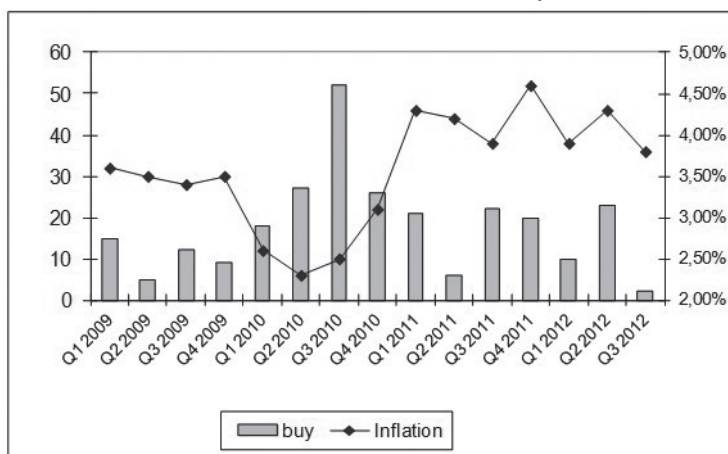
**Figure 3. Industrial production and recommendations “buy”**

Source: own elaboration.

**Figure 4. Industrial production and recommendations “sell”**

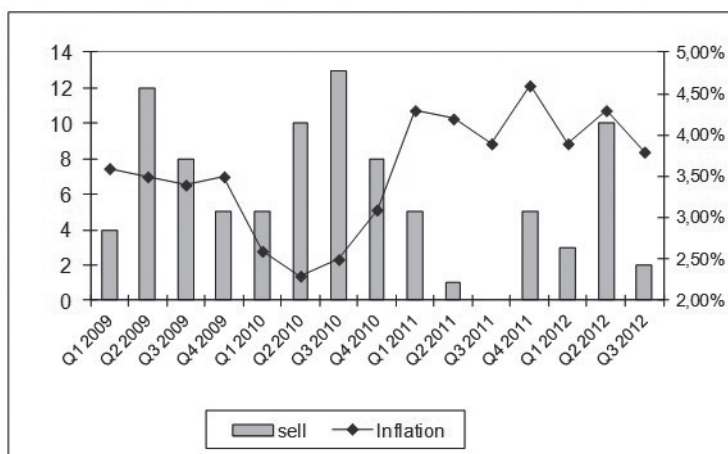
Source: own elaboration.

**Figure 5. Inflation CPI and recommendations “buy”**



Source: own elaboration.

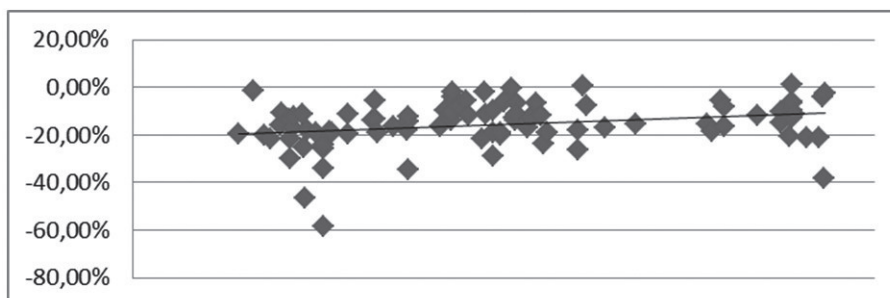
**Figure 6. Inflation CPI and recommendations “sell”**



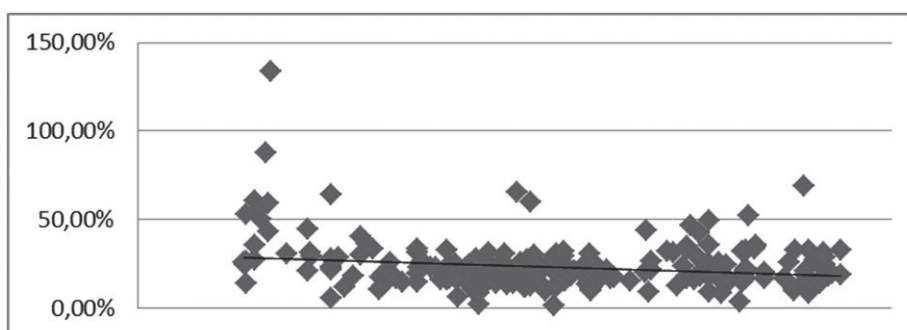
Source: own elaboration.

As can be seen on the mentioned graphs, the economical indicators used in the analysis describe Polish economy trends as horizontal and decreasing what should be a premise for more prudent recommendations. Despite that, it can be noticed that number of “buy” reports remained at the equal level in the most of the time considered. Also, the dispersion of the publication of the two main recommendations that can generate investment signal: sell and buy. The graphs 7 and 8 show how they were spread in the analyzed period (graphs for the other recommendation types are included in appendixes). Each dot represents one publication of the report. What can be easily seen is that “buy” reports significantly outweigh “sell”. Also, despite the main macroeconomic indicators, “buy” recommendations occur constantly. The economic conditions expressed by a number of previously suggested indicators are shown in Figures 1–6. The years 2007 and 2008 were very difficult for the Polish economy. In this period a decline in GDP dynamics, collapse of industrial production and very weak indicators of the economic climate and of the mood of consumers could be observed. Difficult situation throughout Europe very negatively affected the investment climate. According to the proposed measures, the end of 2008 was characterized by a kind of double bottom, followed by a slight recovery, which however, in the end, quickly turned into a long-term horizontal trend of the whole economy. Political and economic uncertainty did not create good conditions for growth and capital inflows. According to the authors in this time the general economic conditions were not conducive to the bull market. However, despite the pervasive, negative macroeconomic signals, many recommendations at this time pointed to growth. Optimism, deeply rooted in the assessment of the economic situation and the reluctance to issue negative recommendations causes that despite weak market data, 561 out of 786 recommendations indicate an increase in the value of analyzed stock. This represents over 71% of the analyzed sample. It should be noted that, assuming monthly investment horizon, only 255 reports in this group turned out to be right.

The reluctance to issue negative recommendations is also visible when the thresholds of growth potentials for the analyzed recommendations are taken into account. It is worth noting that the reported minimum expected decline is -58.33% and the maximum growth is up 133.39%, which is more than twice as much. Confirmation of positive trends in assessments are also medians and standard deviations in the subgroups „buy” and „sell”. The median of growth potentials for negative recommendations is closer to 0 compared to that in a subgroup „buy”. Taking into account the number of negative and positive recommendations and locating the analyzed sample in actual economic conditions, the hypothesis of excessive optimism showed by brokers is likely to be confirmed.

**Figure 7. Growth potentials of recommendations „sell”**

Source: own elaboration.

**Figure 8. Growth potentials of recommendations „buy”**

Source: own elaboration.

In most recommendations the content of the report is consistent with the price growth potential with respect to the signal generated for investors, but in a certain group of reports this relationship is disrupted. Moreover, in the group of neutral reports, most of them are justified mathematically in the context of the target price as its standard deviation is 6.83%, which is consistent with the standard deviation of WIG 20 in the analyzed period, which is 6.38%.

It is worth noting that the number of neutral reports is very large compared to the entire sample. In many of them the target price estimated by the analyst is not significantly different from the price on the date of publication, so this type is justified, but there is a group of reports with a very large dispersion of this potential, which however have not been assigned to other groups as the pricing would indicate. The authors believe that the reason for

this is existence of other reports for the companies, that appeared around the same time and showed very ambiguously the direction of price change, or were divergent from each other. It is likely that the analysts fear the discomfort associated with issuing a recommendation much different from the others in the case where it would appear that their assessment has proved to be wrong. Therefore, although the assessment was prepared, they decided to finally distort the content of their reports, bringing it closer to other reports. In a similar way one can explain the divergence in other subgroups of reports in which the growth potential is ambiguous in relation to the issued recommendation.

It is worth noting that the changes in the strength of the signals seem to be weakening from year to year throughout the analyzed period. Brokerage houses issue recommendations with more and more blurred “sell” and “reduce” signals along with a downward trend in the group of “buy” reports. In addition, “buy” reports tend to turn to “accumulate”, which is a sign of extreme caution presented by analysts as the growth rates estimated by them in this group of recommendations are growing with time. It would mean that direct indications for individual companies show their growing potential, but the economic climate is not conducive to issuing “buy” recommendations.

A high issuing frequency and stability of trends is observed in neutral recommendations which, however, do not bring anything significant to the market. It is worth noting that there are distinct periods of increased prevalence of specific groups of recommendations. So the reports which are neutral appear in an increased number virtually over the entire year 2010 and later since the beginning of 2012. Surprising is a very small number of “sale” and “reduction” recommendations in 2011, where many macroeconomic indicators pointed to slowdown in economic recovery and the transition to a phase of stagnation. It is easy to see that “buy” recommendations appear relatively regularly throughout the study, which also indicates a strong optimism rooted among the stock market analysts.

Finally the authors tried to describe the relation between the price change and the recommendation with usage of the econometric modeling. As described before, to make the data more clear, the figures are represented with; the surplus above the standard deviation in the price change and the growth potential resulting from the recommendation. It should be noted here that all the recommendations reports that assumed growth potential lower than the standard deviation for a month interval for the market were taken out of the research sample. That would filter the insignificant reports for the decision

making. Also they decided to divide the made estimations to two groups after filtering the weak signals. Authors would like to find in the first place if there is a general connection between the report publication and the price change after it. They are also aware that large number of the published analysis can distort the signals coming from each one, so after modeling the on the whole group, researchers decided to make an additional estimations only for situations when the price has actually changed after the recommendation in a way that the report is suggesting. Consideration of the proper reports separately would help to answer the question if the price movement can be associated with the recommendation with the additional assumption that in cases of the discrepancy between the report and actual price change occurred, other important economical information was published, that was contrarian to the report and more important to the investors.

After adding the filter for the weak recommendations, a group of them has been excluded from the database. According to the five days horizon, 13,74% of the reports were removed and 678 reports were taken into final consideration and in the one month perspective more than 26% of reports were precluded and the estimation was made on a sample of 579 records. Below there are the result of the calculations made for both investment horizons.

### ***Whole Sample***

#### Horizon T+5 days:

The dependent variable: price T+5 change surplus

	<i>Factor</i>	<i>Stand. Dev.</i>	<i>t-Student</i>	<i>p-value</i>
const	0,0027	0,0033	0,802	0,423
Growth potential	0,03367	0,0109	3,089	0,002

The arithmetic mean of the dependent variable = 0,0058

The standard deviation of the dependent variable = 0,0894

The sum of squared residuals = 5,3856

Standard error of residuals = 0,0893

$R^2 = 0,0043$

corrected  $R^2 = 0,0028$

Horizon T+30 days:

The dependent variable: price T+5 change surplus

	<i>Factor</i>	<i>Stand. Dev.</i>	<i>t-Student</i>	<i>p-value</i>
const	0,0016	0,0041	0,386	0,699
Growth potential	0,0696	0,0297	2,346	0,019

The arithmetic mean of the dependent variable = 0,0091

The standard deviation of the dependent variable = 0,0765

The sum of squared residuals = 3,2923

Standard error of residuals = 0,0755

 $R^2 = 0,0278$ corrected  $R^2 = 0,0261$ ***Only correct recommendations sample***Horizon T+5 days:

The dependent variable: price T+5 change surplus

	<i>Factor</i>	<i>Stand. Dev.</i>	<i>t-Student</i>	<i>p-value</i>
const	0,00424	0,0064	0,661	0,509
Growth potential	0,06331	0,0310	2,039	0,042

The arithmetic mean of the dependent variable = 0,0108

The standard deviation of the dependent variable = 0,1078

The sum of squared residuals = 4,2737

Standard error of residuals = 0,1073

 $R^2 = 0,0110$ corrected  $R^2 = 0,0084$ Horizon T+30 days:

The dependent variable: price T+5 change surplus

	<i>Factor</i>	<i>Stand. Dev.</i>	<i>t-Student</i>	<i>p-value</i>
const	-0,0044	0,0049	-0,893	0,373
Growth potential	0,1300	0,0365	3,554	0,0004

The arithmetic mean of the dependent variable = 0,0109

The standard deviation of the dependent variable = 0,0694

The sum of squared residuals = 1,4208

Standard error of residuals = 0,0649

 $R^2 = 0,1278$ corrected  $R^2 = 0,1252$



The prepared estimations shows that there is a significant connection between the growth potential and the actual price movement after the publication of the recommendation report. Nevertheless, the further testing of the models above showed some very important statistical problems of the calculations. The most important is the fact that the model residuals are not homoscedastic and what comes with it, the estimator is convicted with big mistakes in conclusions. This problem occurs in every model, with whole sample and with only correct reports. Also, the  $R^2$  in the proposed models shows that the proposed set of variables describes the dependent variable in very low percent. This arguments pushed authors to the statement that the relation observed is inconclusive and that is why we should not understand it as a prove for the initially claimed hypothesis.

The simple measure of correlation that was also implemented in the research affirms the upper conclusion. Table 6 contains the values for all the subgroups assessed.

**Table 6. The correlation between the potential growth and the price change surplus.**

Subgroup	Correlation	p-value
T+5 whole sample	0,0627	0,2493
T+5 only correct reports	0,0944	0,2100
T+30 whole sample	0,2510	0,0000
T+30 only correct reports	0,4868	0,0000

Source: own elaboration.

The correlation observed in T+5 horizon should be not taken into account due to the p-value calculated. The horizon of one month brings more interesting conclusions because of the relatively high correlation that shows a link between the assessed factors. It should be noted here that there is a higher risk of including other factors except the recommendations in discounting the price change, when we take into consideration the whole month period, but with the proposed methodology we should state that there is a noticeable and significant connection between the publication of the report ant the price change in a month period after it that can be assigned to the recommendation appearance.

**Summary and final conclusions**

The analyses carried out on a sample consisting of recommendation reports for the WIG 20 companies confirmed the hypothesis posed by the authors, suggesting the existence of behavioral effects in the process of creating these reports, such as excessive optimism and anchoring effect. These considerations show how the ambiguity of the procedures and methods of the valuation of the companies cause subjectivity of assessments and lead to heuristic effects. The authors are of the opinion that the structure of recommendations, their construction and the specific date of publication indicate that analysts in their judgments are trying to keep relative conformity, avoiding the assessments opposite to those which were already published for the same types of securities. Additionally the anchoring to the assessments expressed in other reports is causing the recommendation anomalies, such as for example neutral recommendations with a growth potential of 35%. The existence of these effects significantly impedes an objective interpretation of final results of analyses carried out in the course of making the recommendation. It is then necessary to track closely the entire analytical process, including the initial assumptions, which may require making new, independent valuation of the company.

Moreover, the second hypothesis about the effect caused by the recommendation publication on the shares price change was not unequivocally proved. Simple statistical measures shows that a link between the assessed figures is noticeable but the econometric modeling and testing uncovered that the estimated relation can be misleading. Authors state that the observed outcome does not result with the conclusion that the recommendations do not affect the prices, but their relation to them is more complicated and incorporated into the large stream of information that is affecting prices, which leads to the problems with extracting only the influence of the reports on the stock prices.

The conducted research also aims to identify interesting research directions and to draw attention to the problem of heuristic, which is distorting analytical processes and to subjectivism of capital markets, as well as its causes arising in psychology, which the writers are planning to explore in subsequent publications.

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## ATTACHMENTS

Table 2. Number of reports by type and publishing organization.

Type of recommendation	accumulate	buy	neutral	reduce	sell	Sum
Banco Espirito Santo SA		2			1	3
Beskidzki Dom Maklerski SA	3	1				4
Citi Group		1	4			5
Credit Suisse	9		8	5		22
Deutsche Bank		9	6		2	17
DI BRE	51	61	74	30	8	224
DM AmerBrokers SA		1	1			2
DM BOŚ SA	1	2	1			4
DM BZ WBK SA		19	12		8	39
DM IDM SA		13	34		10	57
DM PKO BP SA	5	8	2	9	5	29
DM PKO BP SA SA	1	12	5	4	4	26
Erste Bank	8	3	13	3	2	29
Exane				1		1
Goldman Sachs		1	5		1	7

HSBC Investment Bank	2		3	1		6
ING Securities		55	34		28	117
Ipopema Securities SA		12	11		6	29
J.P. Morgan	4					4
KBC Securities		38	23		14	75
Keefe, Bruyette & Woods			1			1
Merrill Lynch		2				2
Millennium DM SA	13	5	13	9		40
Morgan Stanley			1			1
Nomura International			1			1
Raiffeisen Bank		7	2			9
Renaissance Capital		1	1			2
Societe Generale		2	3		1	6
UBS Securities		8	5			13
Unicredit SA		2	4			6
Wood&Company		3	1		1	5
Sum total	97	268	268	62	91	786

Source: own elaboration.

Table 3. Number of reports by type and the company they relate to, part 1

Companies	ACP	BHW	BRE	BRS	GTC	KER	KGH	LTS	LWB
Banco Espirito Santo SA									
Beskidzki Dom Maklerski SA							2		2
Citi Group			1				1		
Credit Suisse		1	3				2		1
Deutsche Bank		1			1	2	3		2
DI BRE	6	18		6	12	10	13	18	17
DM AmerBrokers SA									1
DM BOŚ SA									
DM BZ WBK SA	3	2	2	1			2	1	6
DM IDM SA	4	4	5		2		4	5	1
DM PKO BP SA		1	1				3	4	3
DM PKO BP SA SA		2	2				2	2	2
Erste Bank	1		1		4	2	3	1	
Exane									
Goldman Sachs							1		
HSBC Investment Bank							1		
ING Securities	7	11	12		3	5	11	5	2
Ipopema Securities SA	3	1	3			1	4	1	1



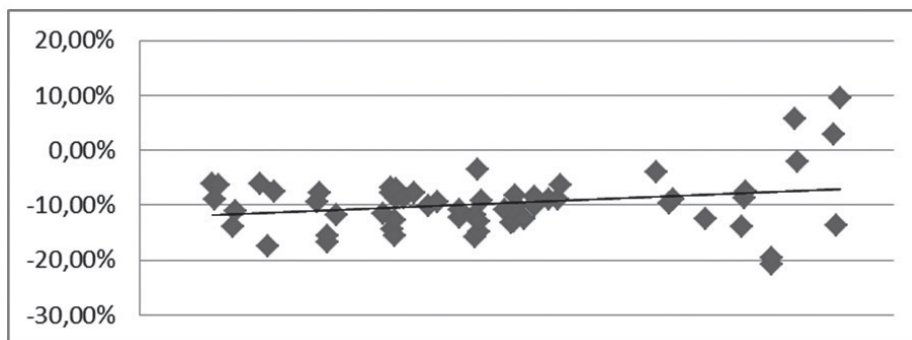
Table 4. Number of reports by type and the company they relate to, part 2

Companies	PEO	PGE	PGN	PKN	PKO	PZU	SNS	TPE	TPS	TVN
Banco Espirito Santo SA		1	1					1		
Beskidzki Dom Maklerski SA										
Citi Group	1		1		1					
Credit Suisse	4	3	1		4	1		1		1
Deutsche Bank	1	2		1				1	3	
DI BRE	21	10	18	13	20	6		4	12	20
DM AmerBrokers SA										1
DM BOŚ SA		1					2	1		
DM BZ WBK SA	3	1	4	2	3		3	1	5	
DM IDM SA	4	1	2	3	4		4		5	9
DM PKO BP SA	1		6	4			1		4	1
DM PKO BP SA SA	2	2	4	3		1	1	2	1	
Erste Bank	1	1		1	1	4	4		4	1
Exane		1								
Goldman Sachs		1	1	2	1	1				
HSBC Investment Bank	1				1				3	

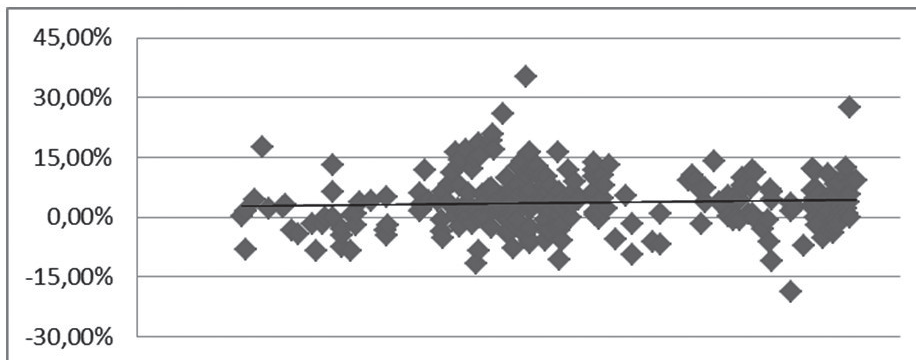


<b>ING Securities</b>	9	4	7	7	12	3	6	3	5	5
<b>Ipopema Securities SA</b>	1	1	2	1	2	1	2	1	2	2
<b>J.P. Morgan</b>					1	2				
<b>KBC Securities</b>	6	2	7	6	6	1			5	8
<b>Keefe, Bruyette &amp; Woods</b>					1					
<b>Merrill Lynch</b>										1
<b>Millennium DM SA</b>	4	1	1	4	3	2	1	2	5	1
<b>Morgan Stanley</b>						1				
<b>Nomura International</b>										1
<b>Raiffeisen Bank</b>		1		3				2	1	
<b>Renaissance Capital</b>		1						1		
<b>Societe Generale</b>	1			1		1				
<b>UBS Securities</b>	3				1	4		1		
<b>Unicredit SA</b>						1			1	1
<b>Wood&amp;Company</b>										1
Sum total	<b>63</b>	<b>34</b>	<b>55</b>	<b>51</b>	<b>61</b>	<b>29</b>	<b>24</b>	<b>21</b>	<b>56</b>	<b>53</b>

Source: own elaboration.

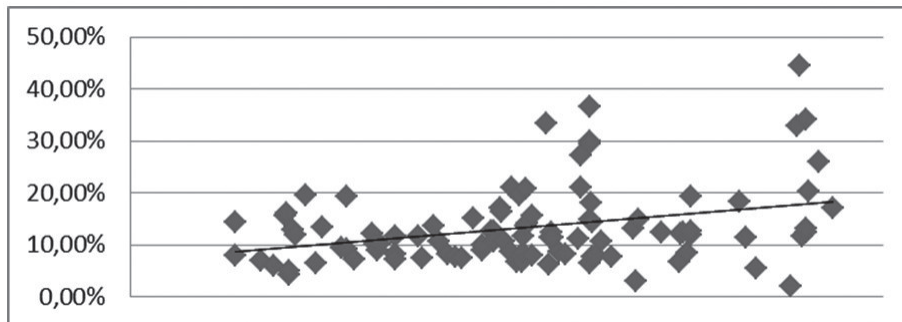
**Figure 9. Growth potentials of recommendations „reduce”**

Source: own elaboration.

**Figure 10. Growth potentials of recommendations „neutral”**

Source: own elaboration

**Figure 11. Growth potentials of recommendations „acummulate”**



Source: own elaboration.



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## Facility Management as a Concept to Support Real Estate Management

### **Abstract:**

The focus of the study is on contemporary concept of Facility Management (FM) that supports processes of management, especially real estate management. The study attempted to analyse the assumptions of standardization of real estate management within the FM concept. Analysis of the situation in the real estate market in Poland in 2013 showed the necessity of implementation of effective management, which concerns not only investment projects, but, particularly, the area of management of facilities and innovations, and taking measures aimed at increasing the value of real estate.

The role and opportunities offered by certain contemporary methods of real estate management (benchmarking and outsourcing) have been discussed, particularly in terms of management of auxiliary processes.

The study presented situation in the local construction sector and developer enterprises in Poland, particularly in terms of taking measures concerning formation of demand and customer preferences in the real estate market.

The results obtained in the study were used to analyse situation in the market of real estate in Częstochowa, Poland, stimulated directly by tendencies observed in this local market and suggest the necessity of proper management of auxiliary processes, which will substantially contribute to improvement of enterprises' operation.

**Key words:** modern concepts of management, Facility Management, costs of FM, earning power, economic situation.

### Introduction

Variety of solutions proposed by contemporary management and rapid globalization of the economy, with particular focus on technological revolution connected directly with development of new technologies that allow an unlimited communication through development of services and departure from mass production, onset of information society and service society, cause that management of enterprises of the 20th century must be oriented at external environment of such enterprises. It should consist first and foremost of definition of the enterprises' aim in the context of the need of the market and customer. With respect to the global scale, the economic, political and social processes force the necessity of internal reorganization of the enterprise [Toffer 2006, Krawiec 2009, Dziedzic, Szymańska 2011].

Changes observed in the world economy today contribute to a new approach to various aspects of enterprise operation in the economy. These transformations, defined as global development tendencies, include in particular:

- formation of a uniform market without barriers and new economic relations, increased international competition; new technologies that accelerate the rate of innovativeness and process of innovations' verification in the market will represent the determinant of changes in the situation in the market, the role of prices will be diminished in favour of total quality and aggressive marketing;
- deep and irreversible crisis of hierarchical structures of management, fast decentralization of organization and hierarchy, formation of the network of processing information and principal changes in the structure of management, deep and irreversible crisis of hierarchical structures of management, fast decentralization of organization and hierarchy, creation of the network of information processing and principal changes in the structure of management;
- area of FM and analysis of assumptions of standardization of real estate management for FM- more comprehensive transformation of industrial economy into information economy, unlimited flow of information that facilitates commercial and production relations, creation of common enterprises, entering into new market segment, creation of new networks of sales and manufacturing goods adjusted to the needs of local foreign markets, regardless of their geographical location [Penc 2002].

The above transformations largely affect the area of management and have a dominant importance to modern concepts of enterprise management, greater openness to technology as well as innovativeness, entrepreneurship and adaptive abilities.

The aim of the study is to present one of the contemporary methods to support real estate management i.e. facility management (FM) that represents integration of knowledge, technology and management of facilities i.e. reduction of costs in the area of FM and analysis of assumptions of standardization of real estate management for FM concept, with particular focus on one of market standards in real estate, i.e. return of sales.

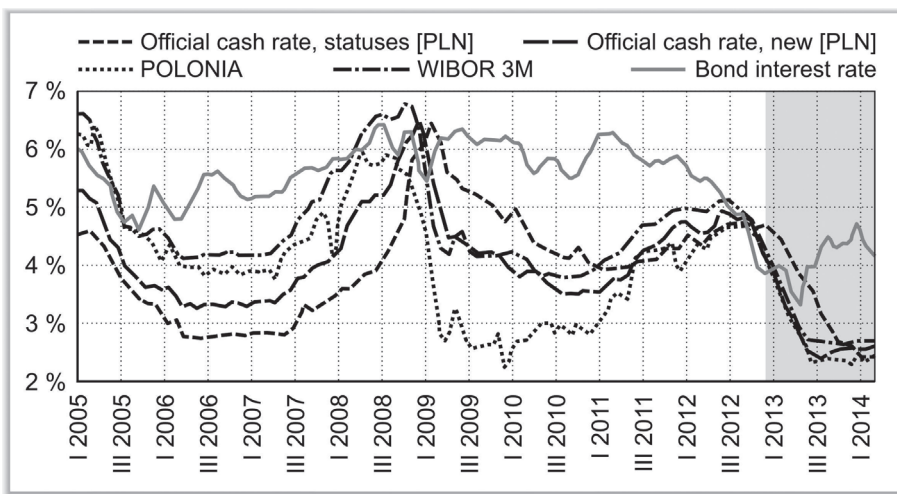
### **Situation in the real estate market in Poland in 2013**

After the period of fluctuations of the values of real estate in 2006–2009, the year 2013 saw a gradual stabilization in the residential real estate market. This stabilization was stimulated by transitional limitation of economic activity, stopping granting foreign currency credits and lack of any governmental program to support purchasing flats (2012 – closure of the RnS program and start of MdM program in 2014). In the primary markets of residential real estate in 2013, the price of the square metre of the average flat was stable while the number of flats in the offer of sales and time of sales was decreasing. The situation in the markets of the existing resources (secondary markets) was also stable. Furthermore, the market of commercial real estate<sup>1</sup> saw increasing imbalance.

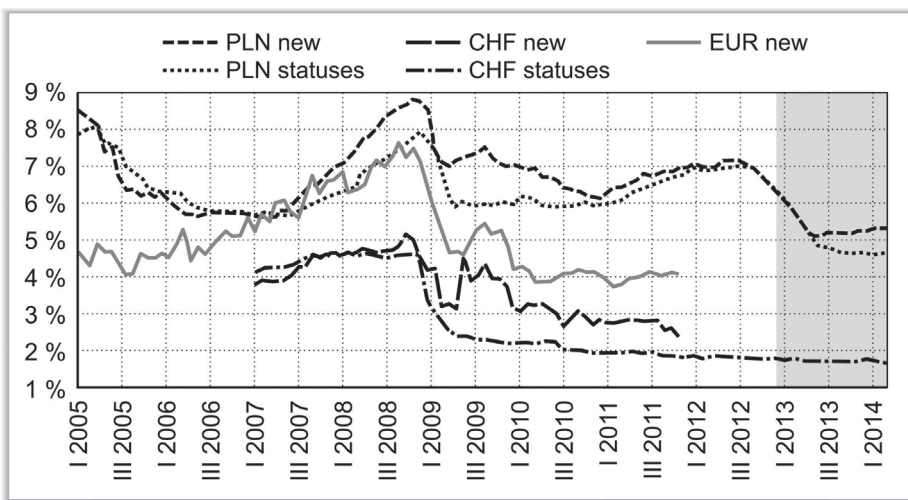
Residential real estate markets, similar to the markets of commercial real estate are naturally of local character. It is estimated that in 2013 in the markets of the biggest cities of Poland, local factors played an important role, which caused that the dynamics of changes was varied. However, the most substantial effect was from the economic factors. One of them was the increase in interest rates. Diagram 1 presents changes in interest rates in the financial market in Poland in the period from the 1st quarter of 2005 to the 1st quarter of 2014. The analysis of the data presented in this diagram reveals that, at the end of 2012, the interest rates were rapidly decreased.

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<sup>1</sup> The commercial real estate, i.e. commercial, service, office and warehouse real estate.

**Diagram 1. Interest rates in the financial market in Poland**

Source: NBP, Departament Stabilności Finansowej [2013, p. 7].

**Diagram 2. Interest rates on mortgages in Poland**

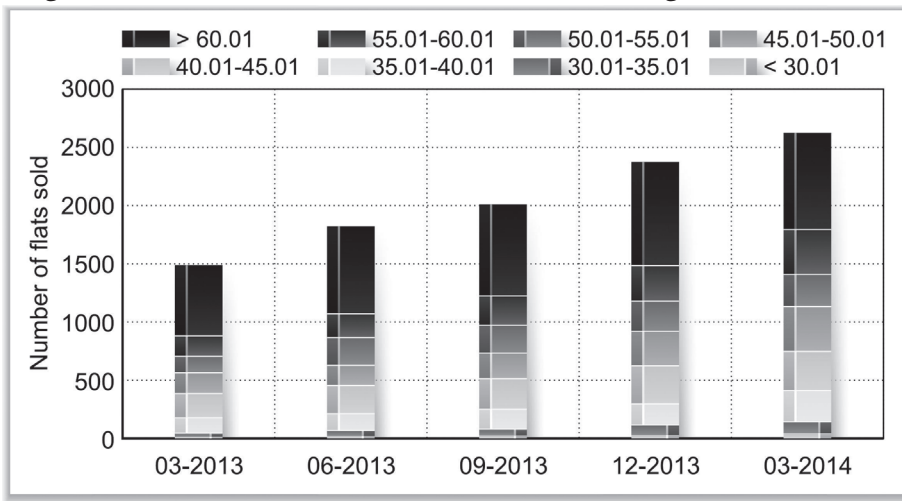
Source: NBP, Departament Stabilności Finansowej [2013, pp. 7,8].



Also, the availability of flats calculated in square metres per average salary in the sector of enterprises increased from 2007<sup>2</sup>, which is connected with the increase in salaries and stabilization of nominal prices of square metres. Indices of availability of flats at the level of 0.7-1.0 square metres for average salary do not illustrate the substantial imbalance in this market (NBP 2013, p. 10). In 2008–2013, a decline in the index of price of average flat per annual incomes (P/I), which is attributable to the decline of prices of average flats and increase in mean annual incomes. This index, which can be treated as a specific measure of stress in the market, returned to the level similar to the value reported before its dynamic increase in 2006–2008.

However, a noticeable decline in unsold spare flats reflected the changes in the situation in the primary residential real estate market. The decline in the spare flats was attributable to the dynamic increase in the demand and sales of flats, especially those cheaper. The number of flats sold in Warsaw according to the floor surface was presented in the Diagram 3. The diagram shows that the most of flats sold were those with floor surface from 35 to 60 square metres.

**Diagram 3. Number of flats sold in Warsaw according to floor surface**



Source: NBP, Departament Stabilności Finansowej [2013, p. 20].

<sup>2</sup> Availability of a flat as a price for square metre per average monthly salary from the 3rd quarter of 2006 to the 2nd quarter of 2007 was declining rapidly, reaching (for 7 main cities in Poland: Gdańsk, Gdynia, Kraków, Łódź, Poznań, Szczecin, Wrocław, in the period from 2006 to the 1st quarter of 2014) the lowest value in the range of from 0.37 to 0.6, whereas in the 1st quarter of 2014, this value ranged from 0.68 to 1.0.

In the markets of 9 major cities (Białystok, Bydgoszcz, Katowice, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Zielona Góra – the division results from the population of the people with permanent residence and the size of the individual real estate market) the increase in transactional prices of a square metre of flats in 2006–2008 were smaller than in the bigger markets. In nine cities, the difference between transactional prices of square metre in the primary and secondary market remained relatively stable. In all the cities studied, average nominal asking prices of square metre were also stable in the analysed period.

In all the analysed cities, prices per square metre of flats in the primary market exceeded the prices from the secondary market, which can be explained by better quality of new flats. However, in 2013 in Warsaw, the biggest developer's market in Poland, new developer's flats were more expensive than those from the existing resources. This might reflect the fact that the secondary market in Warsaw is also characterized by good locations and good adjustment of the size of flats to financial status of purchasers (developers actively adjusted their offer to the customers' needs).

In 2013, the demand in the residential real estate market was substantially affected by regulatory factors, with particular focus on the Act on developer's customers' protection (implemented in 2012) and the lack of governmental programs for support of purchasing flats. In 2012, the governmental program of subsidizing interest rates on mortgages (Rodzina na swoim, RNS) was ended, whereas governmental program of subsidies to purchasing flats in the primary market for young people Mieszkanie dla młodych (MDM) was implemented in 2014.

An upward tendency in the market of commercial real estate (observed from 2010) was maintained. Among the investors, the dominant part were international investors, whereas a substantial part of transaction concerned changes of the owner of already operating building or the commercial building that had been already rent [NBP, Departament Stabilności Finansowej 2013, pp. 26–28]. In the office buildings market, the rates of capitalization ranged from 6 to 7%, whereas in the commercial market this value was ca. 7%.

In conclusion of the situation in the real estate market in Poland in 2013, it should be emphasized [NBP, Departament Stabilności Finansowej 2013, pp. 3–25] that:

- despite a high deficit of flats in 2013, 6.8 thousand flats fewer were sold compared to the previous year. However, the number of the flats remains high. The number of newly issued permissions for building of new flats and the number of investments started were the lowest since

2006. In the 2nd half of 2013, the number of investments started exceeded the level reported in the same period of 2012. The developers also adjusted their flats from the new offer to the preferences and financial status of their customers, offering more small and medium flats,

- one of the most important factors that determine the demand for flats is mortgages and their availability. In November 2013, for the first time since 2002, the share of mortgages in Polish zlotys (PLN) exceeded 50% of the whole portfolio of mortgages,
- an improvement in the indices of credit availability of flats was observed in the period analysed, which was attributable to the increase of salaries and substantial reduction in interest rates on new mortgages in Polish zlotys,
- in the sector of commercial real estate, the year 2013 was another year of fast increase in the supply of new floor surface for offices and commercial facilities. The increase in the value of the transactions concluded in this market was accompanied by the increase in the number of unused flats. With regard to the real estate financed with bank credits, this means the increase in the credit risk with simultaneous deterioration of the quality of collateral.

According to the BaRN database, the market of rent of flats, particularly in the cities which are academic centres, has seasonal character. The highest prices were usually reported in the city centres, in the areas with good availability of means of transport, close to universities, whereas lower prices are typical of post-industrial districts.

The evaluation of the situation in the segment of real estate in Poland in 2013, with constant deficiency of residential real estate<sup>3</sup>, suggests the necessity of implementation of the effective management, which concerns not only investment projects, with particular focus on the area of FM (Facility

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<sup>3</sup> The estimation of redNet Property Group carried out based on the data of the census carried out by the Central Statistical Office of Poland in 2011 (with respect to the data about the residential population) demonstrates that the actual deficit in residential real estate (i.e. the number of households without their own flats) is now 630 thousand flats and will be decreasing – as results from the estimation of redNet Property Group carried out based on the data of the census carried out by the Central Statistical Office of Poland in 2011 (with respect to the data about the residential population). However, only in the previous year, the government estimated that the deficit of the flats in Poland was 1.5 million flats.

Management)<sup>4</sup> and innovations and taking measures aimed at the increase in the real estate value.

### **Selected contemporary concepts of management in the aspect of fm**

Real estate management is undergoing constant and regular modernization resulting from technological progress occurring in civil engineering and changes in the construction of the facilities in buildings, which substantially affected the process of real estate management. Therefore, the effective management should involve adjustment of specific real estate to changes occurring in the real estate market and in the urban space and changes in global character. As results from changing the expectations of the owners and investors, the tendencies of departure from the narrow approach to management of real estate understood as management of the building or a fixed asset towards management of innovations, facilities and taking actions aimed at increasing the value of the real estate are observed.

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<sup>4</sup> Apply automation facilities, systems integrated with the energy system and safety systems, investment in modern central heating equipment e.g. joining the policy of sustainable development promoted by the state (e.g. subsidizing the National Fund for Environmental Protection and Water Management for solar collectors, integration of heating systems, air conditioning or lighting).

**Table 1. Selected contemporary concepts in management of development of the enterprise**

Concepts of management	Details	Essence of the concept
Classical concepts	TMB Time Based Management	This concept approaches time as a strategic resource and focuses on the analysis of time necessary for individual processes in the enterprise in order to eliminate waste.
	Logistics	Philosophy of managing operational activity of the enterprise management of the whole material supply chain including just-in-time production and just-in-time management.
	TQM	The aim of the total quality management is efficient formation of the system for quality control. The focus is on concentration of attention of managers and employees on achievement of the highest possible level of quality of work, processes and products.

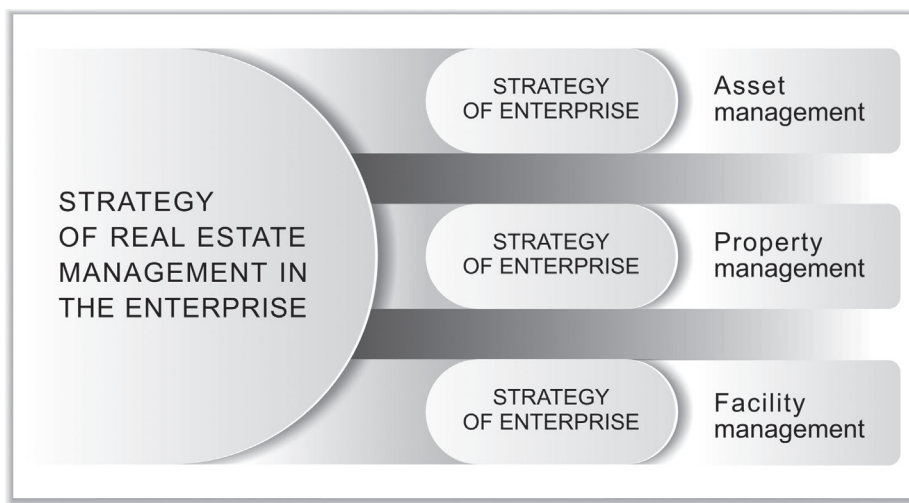
Contemporary concepts	Business Process Reengineering	<p>It represents the methodology of preparation and implementation of substantial changes in the enterprise, uses certain rules and procedures that facilitate operation of the enterprise. In management, the customer needs are approached as customer needs. The focus should be on achievement of the expected results in this area through rational implementation of the whole process oriented at final result.</p>
	Lean Management	<p>The concept of lean management</p> <p>Its aim is to avoid waste and focus on rationalization of operation of the enterprise and the use of all the resources.</p> <p>Preferred terms include: cool calculation, simplicity, savings.</p>
	Outsourcing	<p>Separation of the areas outside the enterprise that do not affect the competitiveness. Its aim is rationalization of operation and cost reduction.</p>
	Benchmarking	<p>It consists in solving the problems by learning from others. Comparison to the best entities in the market in a specific area, comparison between organizational units inside the organization.</p>

Modern concepts	Virtual organization	It represents the network of independent partners who cooperate with each other within a common enterprise.
	Fractal organization	Its goal is to simplify the picture of operation of the organization.
	Knowledge management	The key areas of knowledge management include: acquisition of knowledge, developing knowledge (this process includes acquisition of skills, creation of new products, facilitation of the existing processes), sharing knowledge and popularization of knowledge, using knowledge (focus of attention on productive use of current resources in the organization, with particular focus on such barriers as routine, being uncertain about the position, overestimating your own value etc.), maintaining knowledge (maintaining occurs through selection, storage, and updating data) and location of knowledge (development of the methods to discover organizational knowledge and its fast localization).
	TM Facility Management	According to the Strategy EUROPE 2020, key areas of TM management include implementation of one of the priorities i.e. sustainable development i.e. transformation towards low-emission economy that effectively uses the resources and is competitive. Furthermore, the key area of TM management is represented by one of the leading initiatives (Innovation Union) that uses innovation to solve the most important social and economic problems indicated in the strategy EUROPE 2020.

Source: author's own elaboration based on: Karaszewski [1999], Karlöf, Östblom [1995], Lipiec [1996], Nogalski, Walentynowicz [2004], Penc [2002], Zimmiewicz [2009], Bartusik [2004].

The necessity of active management forces an economic approach to using real estate through determination of goals of enterprise as an owner that plays a role of a user and/or investor [Nalepka 2008, pp. 37–48; Nalepka 2012, p. 11; Rymarzak 2009, pp. 61–70; Nowacki 2010]. The concepts of real estate management are presented in Fig. 1.

**Figure 1. Concepts of real estate management**



Source: author's own elaboration based on: Foryś [2006], Smietana [2013].

The economical function of real estate as assets that generate revenues (or, in other words, representing the instrument whose value might be formed through implementation of the strategy of effective management through initiation of investment and development initiatives) necessitates formulation of the strategies for individual groups of real estate that perform varied functions. The goals of the owner, goals of management and concepts of real estate management were presented in Table 2.



Table 2. Economical method of using the real estate

Criteria	Type	Goal of management	Concept of real estate management
Type of real estate. Criterion of the economical utilization	Operating real estate (real estate used by the owner)	Ensuring facilities that support implementation of the statute objectives of the organization. Optimization of costs. Protecting the property against decapitalization. Maintaining the real estate in the similar state	Technical management (Facility Management) <b>FACILITY MANAGEMENT</b>
	Investment real estate (which generates incomes on rent and/on ensuring appreciation of the capital invested)	Maximization of the value of the capital invested The activities taken are aimed at creation of the capital value (market value of the real estate) with ensuring safety of the capital invested. – Management of rent value – Management of capital value Aiming at the increase in the market value of the real estate Increasing the effectiveness of capital deposits and limitation of risk through diversification. Diversification of the portfolio in aiming for optimization of the rate of return and portfolio risk.	<b>Management of real estate value</b> <b>PROPERTY MANAGEMENT</b> <b>ASSET MANAGEMENT</b> <b>REAL ESTATE PORTFOLIO MANAGEMENT</b>

Source: Śmietana [2013, p. 454].

The concepts of management such as facility management (FM), property management (PM) and asset management (AM) set new objectives for management of real estate through implementation of the goals for the processes of management.

### **Facility management as an innovative concept of real estate management**

Facility management (FM) is a strategy based on the relationships between facilities and management. FM integrates the principles of administration of business, architecture and maintenance of technical objects. Table 3 presents mission of FM according to Williams [1996].

**Table 3. Mission of FM**

<b>Quality</b>	Ensure continuous improvement of operating requirements in the area of real estate and auxiliary services
<b>Value</b>	Add and maintain the value of the real estate in the area of actual status and contribution for production
<b>Risk</b>	Control performance (e.g. safety, efficiency) and costs and be ready for changes

Source: Williams [1996] cited by Pruszkowski [2012].

In the era of globalization, as a result of creation of global companies, the new opportunities are sought in the domain of management since production is based on the most recent technologies controlled by computers, whereas the most modern marketing strategies and methods reached incredible effectiveness. The research interest is more and more often focused on management of auxiliary processes.

One of contemporary concepts of management with respect to real estate is benchmarking. The market standard determinant is most essential to analysis of investment real estate. Goals of strategic management (value-based management) will be set with respect to determinants of the expected market standard, determined using measures of target indicators (usually referential). Information acquired in the process of benchmarking, used for economic evaluation of real estate with respect to objects that determine a market standard for a specific type of real estate concern technical, functional, economic

and financial specifications [Foryś 2006, pp. 36–37]. Determiners of a market standard of real estate include in particular return on sales, operating expenses (including costs of management) and modernization expenses and certifications [Annual benchmarking report 2012].

With respect to determinants of a market standard of real estate, the FM concept concerns management of costs through determination of costs of real estate, their reduction through introduction of safety, analysis of costs and benefits and value-based management.

Since lean management is at the core of the FM concept, its basic objective should be reduction in total costs generated by a specific function of the enterprise (outsourcing). The basis for making decisions on implementation of outsourcing should be balance of total costs and benefits of implementation of a specific outsourcing function or continuation to use traditional solutions. From the standpoint of characterization of contemporary market, this concept is the most commonly used, brings numerous benefits and is the most complementary with respect to other concepts [Trocki 2001, Zimniewicz 2009, *Zarządzanie* 2000].

#### **Analysis of return on sales in local construction and developer enterprises in 2009–2013**

The FM discussed as a concept to support real estate management concerns management of costs. The analysis of the construction and developer sectors in local market provided information with respect to the level of return on sales over the years 2009 to 2013. Analysis of the construction sector with examples of two enterprises (Budownictwo-Odlewnictwo, Export-Import and H-M Częstochowa) provides information concerning the level of return on sales over the years 2009–2013. Results are presented in Table 4.

**Table 4. Analysis of return on sales in selected construction and developer enterprises in Częstochowa and its surroundings in 2009-2013 (as of 1st to 3rd quarters)**

Year Enterprise	2009	2010	2011	2012	2013
Budownictwo-Odlewnictwo, Export-Import (percentage value of return on sales)	5.11	7.30	7.14	6.12	5.9
H-M Częstochowa (percentage value of return on sales)	7.72	4.48	5.62	2.17	1.7
Prestiege Development Sp. z o.o. (percentage value of return on sales)	19.14	18.03	18.90	17.40	15.12
Edilgy Sp. z o.o. (percentage value of return on sales)	15.83	16.49	16.78	9.16	9.65

Source: Author's own study based on ratio analysis of return on sales in selected enterprises.

The results of the analysis of return on sales for the construction sector of the local market in Częstochowa, Poland, presented in Table 4 show that since 2009 (the date of financial crisis that reached Poland) the level of ROS was changing. Unfavourable economic tendencies in the construction sector were most noticeable after 2011.

Similar pattern as for the indices obtained by construction enterprises could be observed in the real estate market. The results of the analysis of return on sales for real estate obtained in two developer enterprises in Częstochowa (Prestige Development Sp. z o.o. and Edilgy Sp. z o.o.) in 2009–2013 were also presented in Table 4.

The analysis of ROS in real estate with the example of the above two developer enterprises shows a declining tendency which can be considered as a stagnation in the market. This fact demonstrates a noticeable relationship between the construction and real estate markets and their mutual effect on each other.

Obviously, there are a number of causes of this state. One of the most important causes is not only the financial crisis with all its effects on the most of aspects of economic and financial life, but also the lack of proper management of auxiliary processes (FM) which might substantially contribute to improvement in enterprise operation.

The result of author's own studies were reflected to current situation in the construction and real estate markets. The analysis employed 4 recent studies<sup>5</sup> carried out by various organizations: Erste Group for the Central Statistical Office of Poland, Research Institute for Economic Development at SGH, KPMG and surveys of experts from Euler Hermes, a commercial insurance company. The report shows that Polish construction production observed in 2012–2013 will remain growing. However, the analysts of the Erste Group claim that this state is temporary and transitional. Entrepreneurs expressed the opinion that current situation in the construction sector is highly uncertain and unstable. These concerns were reflected by surveys by KPMG, IRG SGH and a study on economic situation by the Central Statistical Office.

According to the Central Statistical Office, the economic situation in the construction sector is at very low level. However, the results of the expectations surveyed by the Central Statistical Office among construction and developer enterprises seem to be promising.

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<sup>5</sup> Full information available at [http://inwestor.msp.gov.pl/portalsi/338/21970/Polski\\_rynek\\_budowlany\\_w\\_2012\\_roku\\_ocena\\_bieżącej\\_kondycji\\_i\\_prognozy\\_na\\_przysz.html](http://inwestor.msp.gov.pl/portalsi/338/21970/Polski_rynek_budowlany_w_2012_roku_ocena_bieżącej_kondycji_i_prognozy_na_przysz.html); downloaded on December 15, 2013.

However, the results of another study carried out by KPMG turned out to be pessimistic. According to the survey, a progressing decline in the construction production and sales of real estate in 2012 was expected, even deeper in 2013. It should be noted that these pessimistic prognoses were reflected in 69% in seven in ten enterprises, whereas in the previous year, this percentage was substantially lower (27%).

According to the experts from Euler Hermes, the entrepreneurs attempt to attract customers in order to ensure the turnover and flow of funds. Developers seem to purposefully neglect contemporary concepts of management supported with FM by reducing prices of flats or land lots, thus causing that they become more attractive for purchasers.

### Conclusion

The discussion concerning facility management as a concept that supports contemporary concepts of real estate management shows that application of procedures in order to improve the effectiveness of management of real estate will be possible only after improvement in downward tendencies and quality of the labour market, reduction in unemployment rate, prudential initiatives of banks that grant credits (interest rates and availability of credits) which are conducive to substantial instability in this market and cause that potential customers are afraid of investing their savings, i.e. particularly through application of an innovative concept of facility management.

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## **Atypical Forms of Employment as a Determinant of Economic Activity of People above 45 Years Old**

### **Abstract:**

Taking into consideration established directions of strategic actions and the need to exploit enterprises of custom employment statuses in practice, we would like to examine the alternative in the more detailed way above the vocational activation of people over 45 years old with the temporary work. The purpose of the study formulated in this way allows validating the research hypothesis which is: the temporary work doesn't constitute the important instrument of supporting the occupational activity of people who are 45 years old. Above all features the shown population will be a base of conducted deliberations, a tendency to work in custom employment statuses and scale of exploiting this form of the occupational activity in Poland.

**Key words:** temporary work, occupational activity, people above 45 years old, determinant of the occupational activity.

### **Introduction**

The situation of people over 45 years old on the labour market is difficult. As demonstrated by research carried out for the project „Studying the impact of flexible forms of employment and work organization on labour force aged 45+”, their economic activity is low [Sobocka- Szczapa (ed.), Poliwczak 2011]. In addition, this population is characterized by a high unemployment and too early inaction and marginalization, which is mainly a consequence of demographic change and the legal conditions (early possibility of collecting retirement benefits) [Spytek-Bandurska]. At the same time, the chances of this population to

find employment decline with time, because such people are less competitive in comparison with younger categories of workers. This is a factor whose importance is increasing especially in the situation of decreasing number of work places and reduced tendency of employers to offer jobs. Also, do not forget about the historical and cultural factor that exerts a considerable influence on the activity and entrepreneurial communities and other elements of social and economic life, determining the development of new forms of employment in Poland. Atypical forms of employment are associated with the flexibility of the labor market. They are seen as important factors in the harmonious development of the economy and its actors, which is particularly important now, in the era of globalization. To function effectively, enterprise need to make decisions quickly, even in the area of employment (increase or decrease the number of employees, change forms of employment, the organization of working time, the skills of workers to meet the current needs). In particular, these actions relate to the elderly, because employers are afraid of not fulfilling their expectations.

These determinants affect the need to find solutions that would enable extension of professional activity for the labour resources aged 45+, as well as increase this activity. This could result in the increase of management's effectiveness of the economic units that in the nearest future may face the barrier of limited access to the resources of young people and school leavers that are entering the labour market. It seems necessary also from the point of view of the Europe 2020 Strategy [Komunikat, 2010] and of, developed on this basis, the National Development Strategy 2020 [Strategia, 2012]. These documents assume that one of the changes' directions will be a growth, which is promoting a social inclusion. It means supporting a high-employment economy, which also delivers economic, social and territorial cohesion and the necessity for operating in the field of social inclusion, involving an increase of the professional activity of people excluded or at risk of social exclusion<sup>1</sup>.

Taking into consideration the expected directions of strategic actions and the necessity for using the non-standard forms of employment in the enterprises' practice, which happens more often, we would like to look in more detail at the possibilities of professional activation of people above 45 years old in the form of temporary employment<sup>2</sup>. Expressed in this way, the objective of the elaboration allows to verify the research hypothesis, that is: atypical forms

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<sup>1</sup> Cf. Priorities and areas indicated in those documents.

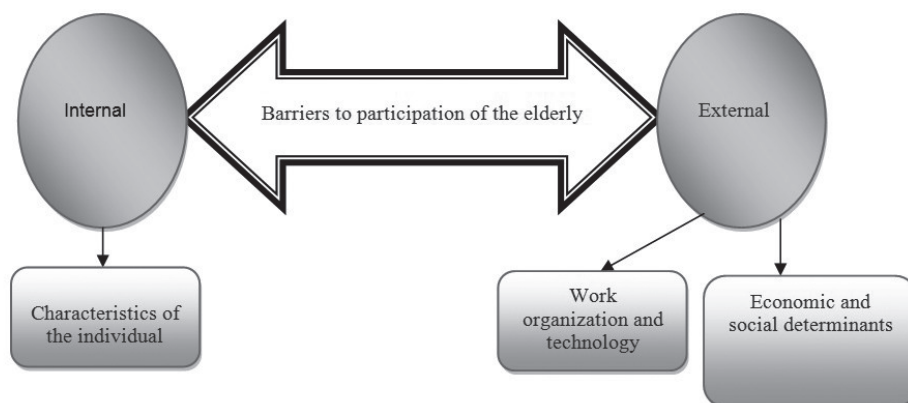
<sup>2</sup> Temporary work is a form of non-standard employment, which is part of flexicurity. For this model consists of four pillars fact: flexible and reliable contractual arrangements, strategies for learning throughout life, active labor market policies and modern social security systems.

of employment, including temporary work, are known – both employers and workers – to forms of employment, the use of which is not common, due to the limited confidence in these forms, especially representatives of the supply side of the labor market. The basis for the conducted considerations will be primarily features of this population, its tendency to work in non-standard forms of employment and the scale of the current utilization of this form of economic activity in Poland.

### Characteristics of people over 45 years old and the temporary employment

Labour resources over the age of 45 have a steadily reducing capacity and physical and mental condition, which applies especially to their late maturity [Rysz-Kowalczyk 1996, pp. 4–50]. Risk areas affecting the professional activity can be subdivided (Figure 1). It should also be noted that, depending on many complex factors, both internal (skills, health, value system) and external (employment policy, legislation, local environment, family), this period may be delayed [Bugajska 2008, pp. 5–7, Sobocka-Szczapa 2007; Klimkiewicz 2009].

**Figure 1. The factors limiting professional activity of people 45 +**



Source: own.

The determinants that are limiting the employment of older people, also belonging to the group of units features, include: relatively low level of education, poor health, tiredness of work, difficulties in adapting to the new conditions, fear of competition from the young people. The second group, related to the organization of work and technology, are features including the necessity of acquiring new skills and qualifications, lack of appropriate training for

workers and excessive pace of work. The third group – the economic and social conditions – creates the situation on the labour market, mainly unemployment, age discrimination, the needs of families for work of aging people and the pension schemes that encourage the relatively early end of professional careers. An important factor is also the attitude of employers, on which depends the preservation of jobs for the elderly. If they are guided by stereotypes, that the occupational usefulness and mobility of workers over 45 years are small, the chances for remaining in employment for this category decline. It is generally believed that such workers need to spend more time and effort to effectively carry out their duties [Makowic-Dąbrowska, Bugajska 2006].

Looking at the above-mentioned groups of factors that fundamentally shape the competitive position of those over 45 years in the labour market, as well as affect the level and scale of their professional activity, it should be emphasized that:

- from the point of view of the individual's characteristics, the biggest limitation may be offering jobs on production, requiring high efficiency and strength,
- significant barrier for professional activity are weaker motivation and lack of aspiration due to a decrease of energy, worse performance of stimulation mechanisms and increase of stressors [Spytek-Badurska], that cause accumulation of difficulties in the assimilation of knowledge and reduces the ability to remember the obtained information and acceptance changes, in particular the technical and organizational,
- older people require increased scope of assistance or incentives for undertaking new ventures; this is particularly true for those who are at the mental stage of waiting for retirement [Hryniewicz 2012],
- fulfilling other social roles means that there are different issues and responsibilities, mainly as a result of changes occurring in the external and family environment (e.g. empowerment of children, birth of grandchildren, death of parents), that contribute to the treatment of professional matters as secondary,
- the financial considerations are of considerable importance, that favor earlier deactivation; incentive to discontinue the work is in fact the fixed pension, which guarantees the social security, as well as the opportunity to take an additional employment, often in the „gray zone”, resulting in higher incomes in comparison to previous earnings.

In comparison to the factors listed above, that affect the reduction of professional activity of people 45+, their biggest advantages are the possessed knowledge and professional experience, that creates the conditions for using this la-

bour resources in the companies' actions in the positions, that are deprived of such risks. This could contribute to the improvement of work quality and its organization. Such competitive advantages of older workers may just be the subject of the offer, implemented through temporary employment agencies. In order to increase the professional activity of people aged 45 +, there are also needed: a systemic solution – namely, the change in the pension system, health care and social benefits, as well as the promotion of flexible forms of employment, improvement of possibilities of undertaking and continuing various classes, providing optimal work conditions, implementation of innovative processes, prevention of discriminatory behavior, increase of work abilities and encourage the lifelong learning. By doing so, for the delivery of sustainable, long-term prevention strategies against early withdrawal from the labour market, one can in fact increase the social productivity and commitment of older workers in the building of the general welfare, as well as reduce the perception of the group as beneficiaries, aggravating the state budget. If such support becomes a priority of many entities (e.g. public employment services, social welfare units), one can expect measurable results in the form of elimination of passive attitudes, increase mobility and the lower side effects of being out of work and livelihoods. It is also important to support employers in creating or maintaining jobs, matched to the abilities and predispositions of older people. A major role in this area can play the promotion among the demand-side representatives of non-standard forms of employment (including temporary work), as well as building ties between the generations, based on mutual understanding and respect that create the possibility of using in the activities of companies the so-called „jobcoaching”, as a way to combine extensive knowledge and experience with the knowledge, skills and physical fitness of young people. This type of behavior is important, for instance, to reduce of the digital exclusion, which we have to deal among the older group both employees and job applicants [Kryńska, Arendt (ed.) 2010 Sobocka-Szczapa (ed.) 2011]. One can then expect the opinion that the professional activity of the elderly people is limited due to the employment of young people will be less important [Bałandynowicz-Panfil 2009, p. 16].

### **The tendency of people aged 45 + to work in non-standard forms**

In 2012, for the project „Studying the impact of flexible employment and work organization in the professional activity of the labour force aged 45 +”, researches have been done among people over 45 years old, in which the subjects of researchers' interest were issues related to the tendency of labour resources for employment in atypical forms [Kryńska (ed.) 2012]. The studies

involved groups: employed, unemployed, economically inactive people (600 people) and employers (200), because the basic assumption of the project was the existence of a causal link between the use of the flexible (non-standard) forms of employment and work organization by the business entities and the level of professional activity of people at the age of 45 and more years. Selection of respondents had a representative character. The method used in the study were interview questionnaires in which were included blocks of questions related to the acceptance of non-standard forms of employment by the people in senior years of working ages, both in the working age, as well as after its completion.

As is clear from the studies, workers with more than 45 years, the least likely of all studied groups, were willing to take employment in non-standard forms, although a substantial share were characterized by those to whom such an offer was ever made. More willing – compared to this category of labour resources – were in this matter unemployed, although it is strictly connected with the lack of other offers. In the case of economically inactive was similar, because taking such employment contributes to remain longer in employment.

The main factors which favored the acceptance were the economic considerations. It was a determinant, which did not play such an important role in the case of other members of the supply side of the labour market. The dominant reason for such a decision among the unemployed was the situation on the labour market and the lack of others, more favorable job offers. This reason is also held in the opinions of the economically inactive, although undoubtedly important was also a health status. Less important, despite of the colloquial opinion in this field, was family situation.

Representatives of the demand side of the labour market, for obvious reasons, had different opinions about the opportunities associated with the use of non-standard forms of employment. First of all, a considerable frequency of this method of employees' employment occurred. The main reason was the economic situation (costs reduction), the need for seasonal work, as well as changes in employment needs, related to changes in market demand.

There were no appreciable differences in the opinions of respondents associated with the preferred type of atypical forms of employment. First of all, it was a part-time job and in the next stage – based on a civil law contract (contract to perform a specified task, order contract). Small number of respondents felt that it could work in the form of temporary employment, and being professionally active through a temporary employment agency. This reflects the limited – so far – importance of this form in framing the professional activity of labor resources in the studied age categories. These results are con-

sistent with analyzes of the demand side of the labour market. In the Polish enterprises the civil law contracts and fixed-term employment are the most commonly used atypical forms of employment [Arendt, Kukulak-Dolata, Poliwczak 2009, pp. 135–198, Kukulak-Dolata, Arendt 2010, pp. 61–82].

In general, the study shows that much smaller – at least declaratively – are the barriers to use the atypical forms of employment among the representatives of the demand side of labour market. Labour resources, despite the different reasons that make the professional activation possible in such forms, actually take smaller part in this kind of employment. At the same time of making such a decision, almost nobody connected it with the ability to implement it in the context of temporary work. These opinions do not fundamentally differentiate between employed, unemployed, economically inactive, as well as employers. This may mean that despite the long functioning of that atypical form of employment, the scale of using it is limited. This may be also a derivative of the very rare use of contracts to perform a certain task in practice by the Polish companies. The extension of this method of employment, resulting from the flexibility of working time, could be an indicator for the increased interest in functioning of the employment agencies, including temporary employment agencies, of both employers and representatives of labour.

### **Operation scale of work agencies offering temporary employment**

The role of temporary work increases among the non-standard forms of employment [Czapliński 2010]. It is recognized that this is promoted by the contemporary economic and social processes, characterized by a high dynamics of changes, as well as significant unpredictability. Temporary work can thus become in Poland, next to the job placement (domestic and foreign), the most important activity of the employment agencies. In fact, the company may achieve a significant competitive advantage by offsetting, at least in part, the risk that arises from the functioning on the market with high volatility of the current and future demand [Gołuchowski 2005, Papińska-Kacperek 2008, Ciesielski 2009]. Therefore, it must be assumed that the process of flexible adaptation of the size and form of employment to the changing market needs will progress. This will force fast, simple and cheap procedures to make and resolve employment relationship. It can also impact the distribution of employees at those who form the core of the company (strategic employees) and those who will do the work of an ad-hoc basis, in the task, part-time work. Therefore, as stated by A. Patulski [Patulski 2008], the institution of temporary work increasingly becomes the only solution to the situation of the permanent shortage of staff and temporary demand increase for workers in



the enterprise. These reasons cause the fact that temporary employment can become one of the basic forms of professional activation for people in senior years of working ages, and thus play an important role in extending professional life of this group.

Let's look at the scale of temporary employment agencies.

At the end of 2008 there were 2,166 temporary employment agencies registered in the country, that represent 56.8% of all employment agencies (3811) [Rozporządzenie 2005]. Throughout this year, they sent to such work 474 747 people. With this 214 750 (45%) were employed in agencies on a contract of employment for a fixed term and temporary employment. In contrast, 55%, or 259 997 people who are not employees of the Agency, have been directed to work under a contract of civil law. In 2009, there was a greater decrease of referrals to work (over 20%). In subsequent years (2010 and 2011) there was noted a systematic increase in the number of people sent to work temporarily. It was, respectively, 433 102 people and 499 024 people [Agencje 2009, Agencje 2011].

Among those targeted by temporary employment agencies to employers in 2009, the majority were women (50.7%, i.e. 219 644 people). But it was a small advantage, testifying to the presence of the same opportunities to find a job, regardless of gender. In contrast, quite a significant variation occurs in the case of respective age groups. For people over 50 years of age, sent to work temporarily, in general numbers they accounted for only 6.9% (29 706 people). There was also few employers who have used the services of such agencies (slightly more than 10 thousand) [Agencje 2009].

There was also a large spatial differentiation of the effective actions taken by the agencies. In the same year, in comparison with other voivodships, the greatest achievements in this field had agencies of Mazowieckie, Dolnośląskie and Łódź. Number of temporary employees performing work developed in these regions at the level of 143 484 people, 75 802 people and 50 656 people. Therefore, the share of temporary workers in these agencies amounted in total to 62.3%. In contrast, few people have taken temporary work in Świętokrzyskie (199 people) and Podlaskie (326 people). The spatial structure of number of employees was strongly correlated with the number of employers using such services. In this case, they were, first and foremost employers of the same regions, and their share in the total number of employers – members amounted to 58.8%. It is worth emphasizing that significant and comparable to those regions was the number of employers, who hired temporary workers, located in the voivodship of Silesia (1 027). The least such entities functioned in Świętokrzyskie (19), Podlaskie (31), Warmińsko-Mazurskie (42) and Podkarpackie (59).



The most common form of employment was working for a short period, i.e. up to three months. For this kind of work has been directed 58% of temporary workers (251 471). Temporary work over the one year was provided by only 22 378 people. At the same time the largest group of people assigned to temporary work were unskilled workers in the industry (64 552 persons) and storekeepers (48 184 people). In this case there was differentiation by gender, because among both women and men dominated these two professions.

### Summary

Atypical forms of employment – according to research – are potentially a tool that improves the employment opportunities of people that are in a special situation on the market – young people, older people, people caring for family members, single parents, etc. These forms can also significantly contribute to the extension activity of people above 45 years of age. Ability for departing from the standard employment allows such people to stay on the labour market, because it would not be possible for them, from various reasons, to meet the standard employment requirements. At the same time, employment in non-standard forms, according to the concept of flexicurity should guarantee security, understood not as confidence of maintaining current job, but as a job security – the ability to transition from one job to another, and from unemployment to employment. However, the most concerns occur in the area of atypical forms of employment security. Following the publication of the *Raport Młodzi 2011* [Młodzi 2011] in the jargon of the media appeared a term “junk contracts”, which is also in scientific research<sup>3</sup>. Moreover, more and more questions arise whether the development of atypical forms of employment does not lead to segmentation, or even to dualisation of labour market, in which there are first and second category<sup>4</sup>.

Emphasized in the development of temporary work balance for activation of persons aged 45+ can also be related to a number of benefits of this form of employment, which would include [Bąk 2006, Pisarczyk 2006]:

<sup>3</sup> According to M. Bednarski and K.W. Frieske, the phenomenon of academic jargon, is described as a “pluralism of institutional forms of work” [Bednarski 2012, Frieske 2012].

<sup>4</sup> People employed in the standard forms included in the so-called the primary segment of the labor market, which is characterized by relatively stable employment, have better prospects for career development and the relatively higher security. While those working in atypical forms go to the secondary segment of the labor market, characterized by a greater fluctuation of employees, worse working conditions and career prospects and a lower wage.

- abolition of working time, place and ways of working rigor,
- usefulness in updating the knowledge and skills, resulting from the return to work or gaining initial professional experience,
- lowering the costs of employers while hiring a worker (relief for personnel service),
- reducing the risk of employment incorrect worker (employee of little use for the company).

Therefore, an effort should be taken in the direction of spreading primarily this form of employment, which mainly for people over 45 years, may contribute to the formation of the diffusion effect of information and transfer of experience. Temporary job creates the chances of conflict-free transition to the professional activity of people over 45 years, even taking into account that it can be regarded as a transitional way of earning, not a target model career [Spytek-Bandurska, Szyłko-Skoczny 2008]. It is worth mentioning here that existing legislation creates a sufficient number of solutions that facilitate professional activation of such people. Therefore, the main obstacle to the implementation of actions that affect bigger interest in temporary employment and other atypical forms of employment, as a tool for professional mobilizing of people aged over 45 years, may be more likely the ignorance and stereotypes than the lack of a suitable legal instruments.

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## Management – Forecasting the Future Cognitive Challenges in Management Science 3

### Abstract

This paper is the third publication from the series of three articles about cognitive challenges in management science. It is the result of the further discussions and reflections concerning the cognitive problems of management after publication of the books about epistemology of management. The paper is a trial to forecast the main cognitive trends and tendencies on the basis of the diagnosis made in two papers in series “Cognitive challenges in management science”. The chosen trends in development of management sciences are: expansion of natural sciences, growing inter-disciplinarity of research, growing specialization, net-marketing in management discourse, challenge of cultural relativism, growing criticism and reflexivity. Response of management sciences to the challenges connected to: interdisciplinary nature, growing specialization, and expansion of natural history can lead to further development of our discipline, but the possibility of disintegration also should not be ruled out. Deepening specialization, lack of long-range theory, and growing significance of natural history could lead to disintegration of our discipline, whose fields would be incorporated by other domains. I think that in order to avoid this possibility it would be desirable to uphold the cohesion of management sciences through deepening the cognitive reflection and openness to inspirations originating in other areas of science. But future is difficult to predict and maybe other trends that are not too visible now will change management sciences in future.

**Key words:** management epistemology, management methodology, management paradigms.

## Introduction

The epistemological and methodological problems in management are very complex for theoretical reflection. Cognitive value of such analyses could be linked with growing methodological awareness and reflectivity of our scientific community. These are creative cognitive processes, which do not base solely of developing knowledge, but means also critical and alternative thinking. The presented reflections do not represent a single, the only or even dominant way of experiencing changes in contemporary management sciences discourse. It is more search for a wider perspective going to the identification of the “macro-trends” in management and organization research. The important statement is inclusion of interdisciplinary and pluralist ways of thinking existing in many social disciplines to management itself. It will still constitute “theory jungle” although we have earned theoretical, practical, and institutional achievements.

Management sciences is an unbalanced discourse, because they attach great importance to detailed applications and techniques, often neglecting at the same time epistemological and methodological foundations. There is an enormous number of works on management methodology, while questions concerned with the identity of researcher, paradigm, or preferred methodology are asked rarely. This state of affairs probably results from practical orientation of the scientific discipline, which from its onset “has its feet firmly on the ground “and avoids having its theoretical “head in the clouds”. At the present stage our science can be characterized by a very complex internal structure of discourse, which necessitates theoretical consideration, because even the researchers themselves get lost in the tangle of theories [Introduction to: Sułkowski 2013].

The paper is a trial to forecast the main cognitive trends and tendencies on the basis of the diagnosis made in two papers in series “Cognitive challenges in management science”.

The chosen trends in development of management sciences are:

1. Expansion of natural sciences;
2. Growing inter-disciplinarity of research;
3. Growing specialisation;
4. Net-marketing in management discourse;
5. Challenge of cultural relativism;
6. Growing criticism and reflexivity.

**Natural sciences expansion**

In my opinion in the future we would experience expansion of natural sciences into the disciplines that were limited to social and humanities sciences [Behling 1980, pp. 483–490]. The examples taken from neuroscience, behavioral economy or evolutionary psychology prove that experimental method is useful in solving social problems. Computer simulations, biological anthropology or primatology researches are being used in research in many different fields: psychology, sociology, cultural anthropology, linguistics and management science as well. Management and organization similarly to other social sciences are stronger and stronger influenced by problems and methods of natural sciences [Whitley 2000]. We can mention here researches that are related to: making decisions, social communication, power execution, leadership, organization cultures which are present in neoevolutionary trend. Management sciences have to take this responsibility and follow new research results that describe human nature and the nature of social as well as organization bonds [Sułkowski 2012a, pp. 345–346].

**Evolutionary attitude**

An important cognitive perspective for the discipline of management and the theory of an organisation is neoevolutionism, due to its creative aspects that are adopted by the theory and practice of management, and also association with other scientific disciplines and methodology of research. This article depicts the ways to place neoevolutionary thinking in management. Motivation, people management and leadership are key figures for human resources management, they are strongly appealing to human nature and social group's nature. The effects of research results of evolutionary psychology and behavioural economics lead to new theories of leadership and motivation. Organisational behaviour was until now a discipline introducing the research results of other social sciences to management, not related to the neoevolutionary approach. Strategic management is connected with other factors that have an impact on strategic decision of managers which are the parts of evolutionary models – for instance, organizational culture might be treated as application of the group ties created as a consequence of evolution.

Management sciences are also capable of using the research results and methodology belonging to other disciplines related to neoevolutionary paradigm. Results worth presenting come from working with controlled methods, such as observations and social experiments, not often practiced in management. Results of the research provided by neuroscience, cognitive science,

paleo-anthropology and primatology might be valuable for both sides of management science: not only theory, but also practice. Up to now, the most essential results are derived from behavioural economics and also finances, with a greater identification with economics than management [Sułkowski 2012b].

The roots of an evolutionary approach are naturalistic foundations and that is why it highlights the increasing role of modified functionalist-neoevolutionary approach [Sułkowski 2004].

### **Growing significance of research inter-disciplinarity**

Multi-paradigmatic nature of management sciences leads to the inter-disciplinarity of research [Burrell, Morgan 1979]. Such nature is common to management practice and organization research [Guba, Lincoln 1994, pp. 105–117]. The scope of the inter-disciplinarity ranges from social and humanistic sciences like: economy, sociology, law, cultural anthropology, psychology, history, to formal and natural sciences like: mathematics, biology and physics [Pettigrew, Woodman, Cameron 2001, pp. 697–713]. Forecasting view allow to discover many courses visible in the development of management sciences, and which in historic view form the development of the discipline. Last few decades bring us into a conclusion that the interdisciplinary nature of management sciences would be of a greater meaning. The management in the inter-disciplinary tendency is not the exception [Brewer 1999, pp. 327–337]. In the effect, boundaries between disciplines and fields would slowly disappear, which confronts us with a challenge for exact science and academic community [Massey, Alpass, Flett et al 2006].

### **Growing specialization**

From the perspective of the growing inter-disciplinarity of organization and management research, it seems to be paradoxical that the specialization is deepening. But the reason is quite simple, growing number of research results and several new emerging scientific fields are on the stage of building its identity. The main concentration area is not management and organization as a whole, but rather quite narrow field of research that is growing and has more inter-disciplinary character. The very good example of this tendency could be the development of the field of family businesses, that is booming the last 20 years and at the same time more and more inter-disciplinary [Dyer, Sánchez 1998, pp. 287–295, Chrisman, Chua, Sharma 2003, pp. 1–63].

The increasing research results number, the deeper level of research and more professional character of the education end in greater specialization,



which describe scientific discipline and subdisciplines as well. This tendency allows a deeper view into cognitive problems and methods chosen for the selected problem or question. However, it does not help to recognize research results that might be provided by other disciplines and that would be also able to form a basic theory explaining examined issue.

The integrity of management science is possible due to interdisciplinary nature of our science. Deeper specialization does not change it, providing that we are still ready to consider research results from other sciences. The management representatives are able to develop and enhance the identity of their chosen discipline but that does not mean profession-centrism or isolation from different disciplines.

### **Net-marketing in management**

Scientific marketing in management is getting more and more important and has been developing in a dynamic way for the last few decades. This is connected with an expanding role of consulting, science popularization, management guru and management practice when research is considered. It has many advantages because it means introducing theory results into practice and the pragmatic mission of management sciences is fulfilled. But the disadvantage is that could end in making the research results simplified and the development not independent from passing trends. Moreover, some concepts which are „perceptually formatted” (meaning they are simple, not difficult to remember and lead to stereotypes), are not always more cognitively most adequate [Mickleshwait, Wooldridge 1996]. The simplistic presentation of concept could be the source of the serious limitations of the management theory [Ghoshal 2005, pp. 75–91].

### **Cultural relativism**

In my opinion it is impossible to avoid cultural relativity of management in some subdisciplines but it may not be done with a postmodernist form [Usunier 2000]. There is a chance individual cultural studies would no longer be of a high significance, and intercultural comparative analyses would become valuable. To me, cultural relativity is a globalization consequence, management concepts and methods diverge locally in connection with cultural context. Management sciences confronts ethnocentrism and this process, as well as cultural and economic globalization, is associated with cultural diversity threads in the management sciences discourse, for instance models of Hindu, Latin-American, Chinese and other organizations [Watson 2001]. The grooving interest in the area of cultural relativism, could be also observed in

several new areas like; public management, marketing, communication studies and other [Blunt 1995, pp. 1–9].

### **Increasing reflexivity and criticism**

The next tendency is growing axiological pressure that concerns management sciences. The future may put an emphasis on two aspects of organizing: ethnic and social. We can observe signs of this even today. Critical trend in management can be easily noticed and is oriented on justice and equality in somehow idealistic manner [Chouliaraki, Fairclough 2010, pp. 1213–1218]. The most essential issues include: business social responsibility [Banerjee 2008, pp. 51–79], employees subjectivity [Fleming, Spicer 2003, pp. 157–179], critical education [Grey 2004, pp. 178–186], ethos organization and characteristics of ethical organization [Fenwick 2005, pp. 31–48], critics of managerialism [Saravanamuthu, Filling 2004, pp. 437–452].

### **Conclusion**

The fundamental questions of the development of management as a science in future are pushing the discipline for the widening its field, blurring the boundaries and deepening the specialization. Part of this tendencies like growing the scope of researched problems or showing auto-criticism are illustrating that management and organization is still very dynamic science that has large social influence.

The challenges for management sciences, such as: growing specialization, interdisciplinary nature and development of natural history would be followed by further development of management but brings to light a possibility of disintegration. That can be caused also by growing specialization, main role of natural history or lack of progressive theory, and some management fields may be taken in by other domains. My way to fight this threat would be maintaining the coherence of management sciences by broadening the cognitive reflection and tolerance for ideas from other sciences. Besides, these are only predictions, there is also a possibility that in the future other new tendencies would shape the management, ones that are not obvious nowadays<sup>1</sup>.

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<sup>1</sup> The deeper analysis of the problem in: Ł. Sułkowski, *Epistemology of Management*, Peter Lang International, Frankfurt-Berlin-Bern-Vien-Oxford-New York-London-Warsaw, 2013.

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## **Application of Finance Management Instruments in Business Entities for example of PGE and Tauron Companies**

### **Abstract:**

Running a business involves the risk borne by the owners. They are most often identified with failure to achieve expected rates of return by investors. The same mechanisms apply to business entities whose one of the main objectives is to maximize the profits level.

Equally important task, and according to the larger group of professional literature authors the most important is the increase of the company's market value.

Both purposes have common ground, involving the selection of indicators and instruments for the assessment of the financial condition and the value added of analyzed business entity.

The objective of this paper is to compare mechanisms used to assess the financial condition of enterprises and indicate imperfections of measures based solely on bookkeeping data derived from an annual financial report. Characteristic features and the more objective nature of economic measures, in particular such as the Economic Value Added (EVA), are presented.

**Key words:** annual financial report, financial ratio, finance management, stock – exchange company, economic value added.

**JEL Codes:** G 23, G 32.

### **Introduction**

Making right financial decisions is crucial for the proper operation of business entities and achievement of established goals. Specialist literature indicates two basic aims of the functioning of enterprises, namely net profit maximization and an increase in a business entity's market value [Szyszko, Szczepański (Eds.) 2003, pp. 23–24].

Financial decisions are made based on financial data obtained, first and foremost, from an enterprise's annual financial report. A vital element is to select a method of assessing a business entity's financial condition. Modern concepts point to the drawbacks of the ratio-based assessment of financial condition and suggest alternative solutions in that scope.

The main purpose of this paper is to demonstrate the imperfection of ratio-based financial condition evaluation method, which is based on accounting data and an attempt to confirm the higher objectivity of economic measures, based on the mechanism of residual income and Economic Value Added.

To reach submitted purpose, the research hypothesis was formulated, according to which the results of the analysis of the financial condition of enterprises from energy sector "PGE and TAURON" by traditional methods (financial indicators) and economic value added method can supply significantly different from each other results.

Assessment of the financial situation of enterprises has been based on data from financial statements published in the years 201–2013 and using the information outside the financial statements primarily concerning their costs of equity and liabilities.

### **Data sources for the evaluation of company's financial condition**

The legal instrument regulating Poland's accounting and reporting system is the Accounting Act having been in force since 1 January 1995<sup>1</sup>.

Pursuant to the provisions of the act an annual financial report consists of the following documents [Bednarski 2007, p. 33]:

- Balance sheet,
- Profit and loss account,
- Supplementary information,
- Statement of cash flows,
- Statement of changes in equity.

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<sup>1</sup> The Accounting Act of 29 September 2004, Journal of Laws of 1994, No. 129, Item 559, as amended.

Full reporting applies to business entities which, for the present and preceding financial year, have achieved two of the following three figures [Jerzemska 2006, p. 48]:

- Average annual employment calculated as full time jobs exceeded 50 people,
- Total balance sheet assets as of the end of the financial year exceeded the Polish currency equivalent of EUR 2,000,000,
- Net proceeds from sales of products, goods and from financial operations exceeded the Polish currency equivalent of EUR 4,000,000.

Entities that have not achieved at least two of the above figures prepare their annual financial reports in a simplified form, composed of a balance sheet, profit and loss account, and supplementary information.

Documents used to analyse an enterprise's financial position include mainly the balance sheet and profit and loss account.

The balance sheet is part of a business entity's annual financial report. That document contains a summary of an enterprise's assets and sources of their financing as of a specified day [Pomykalska, Pomykalski 2007, p. 36].

The chief principle behind the balance sheet structure is that assets should equal liabilities.

Assets are arranged according to the criterion of their increasing liquidity, while being divided according to the criterion of time (long- and short-term assets).

Liabilities are organized according to their due dates (maturities), while they are grouped together in accordance with the capital origin principle.

The classification of asset financing sources allows determining the level of financial risk associated with an enterprise's activity and its effectiveness in using equity and external capital.

Unlike the balance sheet, which shows resource figures, i.e. the material and capital position of an enterprise as of a specified balance-sheet day, the profit and loss account presents stream values, i.e. costs borne and losses incurred as well as income derived and profits made in a reporting period. Thus, the latter is a document that supplies information on the functioning of an enterprise in a given period [Wypych (Ed.) 2007, p. 129].

The profit and loss account is divided into three basic areas summed up by appropriate categories of profit or loss, being commonly used in ratio analysis [Czekaj, Dresler 2001, p. 86]:

- Core business (operating) activity area summed up by Operating Profit or Loss,
- Financial activity area summed up by Gross Profit or Loss,
- Tax area summed up by Net Profit or Loss.

**The essence of the indicator – based evaluation of business entities' financial condition**

A properly performed assessment of an entity's financial condition requires sufficient information. Most of that is acquired from an enterprise's annual financial report, and in particular from its balance sheet and profit and loss account.

However, the so called non-balance-sheet information is important as well, for example:

- Number of shares issued by an enterprise,
- Market value of shares at the beginning and end of the reporting period,
- Dividend figures for all share types,
- Interest rate of liabilities.

The above information is not of the utmost importance to the ratio analysis of an enterprise's financial position but constitutes a vital component of that assessment's alternative forms. One of those will be presented further in the study.

A comprehensive financial analysis of an enterprise ought to include [Ga-brusewicz 2005, pp. 30–32]:

- Horizontal analysis allowing determining the dynamics of specific components of the profit and loss account as well as those of the balance sheet as compared with preceding periods.
- Vertical analysis making it possible to determine the structure of the profit and loss account and balance sheet, based on which the importance of their specific components may be evaluated.
- Ratio analysis that supplements the two above-mentioned analyses.

According to specialist literature a financial ratio is a coefficient created on the basis of information contained in an annual financial report of an enterprise. Its structure is most often a relationship between two phenomena, describing the financial, material or capital structure of an enterprise [Jerzemowska 2006, pp. 117–120].

The ratio analysis of an enterprise's financial position most frequently employs one of the following three methods [Sierpińska, Jachna 2006, p. 24]:

- Analysis in time – consists in comparing financial ratios for a given enterprise with their historical values, which allows observing a tendency occurring for a studied phenomenon.
- Analysis in space – consists in comparing financial ratios of a studied enterprise with those of its competitors within the industry, which makes it possible to evaluate the entity's position in the market.



- Analysis using reference values – consists in verifying whether ratio values are within appropriate ranges. Limits of the ranges are most often recommended by specialist literature.

As indicated by authors of specialist literature, there are the following key groups of financial ratios [Waśniewski, Skoczylas 2004, pp. 72–74]:

- Financial liquidity ratios,
- Profitability ratios,
- Activity (efficiency) ratios,
- Debt ratios,
- Capital market position ratios.

Financial liquidity is defined as the ability of a business entity to timely pay its short-term liabilities by using its current assets. Specialist literature determines reference value ranges for the ratios. When their actual values fall outside the range, an enterprise suffers from financial under- or over-liquidity [Gabrusewicz 2005, pp. 226–227].

The most frequently applied financial liquidity ratios include:

- Current ratio,
- Quick ratio,
- Cash ratio.

Profitability is defined as the financial condition of an enterprise expressed by the profit or loss on its economic activity [Czekaj, Dresler 2001, p. 117].

The value of profit itself is not an objective piece of information, and thus that value is set against items of the annual financial report describing the volume of an enterprise's activity (income from sales, asset values and equity values).

Profitability ratios are considered the most synthetic measures to assess an entity's economic activity. Their values are affected by all economic phenomena and processes taking place in a company.

Profitability measures include:

- Return on Sales (ROS),
- Return on Equity (ROE),
- Return on Assets (ROA),
- Return on Investment (ROI).

Activity (efficiency) ratios allow evaluating an enterprise's activity in respect of managing its material resources and the time needed by it to pay its liabilities. Those ratios describe a company's financial position. Moreover, they inform about the effectiveness of its use of assets and its capability to convert stocks and receivables into cash [Wypych (Ed.) 2007, p. 178].

Basic activity (efficiency) ratios include:

- Receivables turnover ratio,
- Day's sales on hand,
- Stock turnover ratio,
- Working capital productivity.

Debt (leveraging) ratios allow assessing an enterprise's capital structure, its ability to pay liabilities, and the strategy it employs in financing its operations. Thanks to being financially supported by external capital, it is possible for an enterprise to take advantage of the financial leverage effect that enables a profitability increase [Dudycz 2002, p. 154].

The most popular debt-assessment ratios include:

- Debt to total assets ratio,
- Interest cover ratio,
- Debt structure ratio,
- Golden balance-sheet rule,
- Golden rule of banking.

Ratios concerning an enterprise's position in the capital market are used by stock market investors when making decisions on the purchase or sale of shares in a given company. They show whether shares are attractive in respect of their market prices or dividends.

Key capital market ratios include:

- Earnings per share,
- Price-earnings ratio,
- Dividend yield,
- Dividend payout rate.

Financial ratios are calculated based on data expressing the state of affairs at the beginning and end of a studied reporting period.

In addition, the ratios are computed using average values as of the beginning and end of an accounting year.

Therefore, differences between their values reflect changes in a studied phenomenon resulting from financial decisions made by an enterprise's management during that period and the overall economic situation at that time.

### **Economic Value Added as an alternative and modern concept of evaluating companies' financial situation**

The measures presented earlier in the study are imperfect and there are a constantly growing number of those who criticise their being used as the only measures of the financial condition of enterprises.

They are described as the so called bookkeeping measures whose informative value will decrease due to the transformation of industrial enterprises into knowledge-based ones. As a result of those transformation processes, book values in annual financial reports will change, hence affecting the levels of ratios [Dudycz 2002, p. 175].

Another objection is that the analyses use the book profit, which impacts the way in which obtained results are perceived; hence, it is not an economic but only a bookkeeping point of view that is represented.

Numerous objections were raised concerning the weakness of the book profit and its application in the ratio analysis of the financial position of enterprises. The most important of those objections include [Rappaport 1999, pp. 11–15]:

- Effects on the financial result of alternative accounting methods used,
- Disregarding incurred risk,
- Disregarding changes in the value of money over time, which prevents a realistic comparison of obtained results,
- Not taking into account the dividend policy, hence the cost of equity in enterprises,
- Disregarding investment outlays made.

The table below shows the evolution of measures applied in assessing the financial position of enterprises.

**Table 1. Evolution of assessment criteria for the financial condition of enterprises**

Period	By 1970s	1980s	1990s	Contemporarily
Employed measures	Return on Sales (ROS)	Earnings Before Interest and Taxes (EBIT)	Return on Assets (ROA)	EVA
		Net profit dynamics	Return on Equity (ROE)	CVA
				SVA
				CFROI

Source: own work based on: Helfert E.A. 2004, pp. 495–503.

The measures used nowadays allow, in practice, to apply the VBM (Value Based Management) principle that consists in managing an enterprise with a view of increasing its market value. Those measures do not indicate how much an enterprise is worth but inform whether its value increases [Marcinkowska 2007, p. 512].

The most important of those measures include [Helfert 2004, pp. 496–502]:

- Economic Value Added (EVA) – it is the most popular measure that adjusts the operating profit by taking into account the cost of invested capital. It will be discussed further in the paper.
- Cash Value Added (CVA) – its concept is similar to EVA, however, it is based on monetary (cash) values,
- Shareholder Value Added (SVA) – its distinctive feature is that it does not take into account historical figures but is based on investors' expectations about the future cash flow generation,
- Cash Flow Return on Investment (CFROI) – it is an average IRR (Internal Rate of Return) of all investment projects carried out by an enterprise.

The EVA measure is based on the Residual Income concept by Alfred Marshall. He was the first to draw attention to the defectiveness of bookkeeping measures that, when used in determining the net profit takes only financial costs into account, while completely disregarding equity costs borne by an enterprise. The Residual Income is defined as the sum of an enterprise's net profits reduced by shareholders' remuneration costs (costs of equity) [Dudycz 2002, pp. 176–178].

The concept of the Economic Value Added was first presented by the Stern Stewart & Co. consulting company at the end of 1980 based on the earlier presented Residual Income mechanism [Helfert 2004, pp. 503–506].

The idea behind the EVA is to modify the Residual Income in order to achieve a more objective picture of a company by getting rid of “accounting anomalies”. In order to eliminate the possible bookkeeping “distortions” resulting from the adoption of a specific balance-sheet policy, each element of the formula needs to be adjusted. The essence of the adjustment is to compute a surplus of the adjusted Earnings Before Interest and Taxes (EBIT) reduced by income taxes over the costs of all capitals involved to generate those earnings. Among others, the following should be determined:

- Earnings Before Interest and Taxes (EBIT) generated only from operating activity (without balance-sheet and non-balance-sheet financing elements),
- Adjusted income tax that does not take into account protection in the form of regarding costs of financing as tax deductible ones,
- Volume of all capitals financing a company's activity classified into their specific types.

To put it very simply, it can be said that the EVA is a difference between the operating profit reduced by taxes (the so called Net Operating Profit After Tax – NOPAT) and the amount of cost of all capitals used by an enterprise.

The mathematical formula of the EVA is as follows [Wypych 2010, p. 43]:

$$\text{EVA} = \text{EBIT} \times [1 - d] - [\text{WACC} \times (A - \text{CL})]$$

where:

EBIT – Earnings Before Interest and Taxes,

d – income tax rate,

WACC – weighted average cost of total capital in an enterprise,

A – value of assets

CL – value of current liabilities.

The basic feature that makes the EVA stand out against other methods of assessing the position of an enterprise is that it uses the average weighted cost of capital mechanism, i.e. takes the cost of equity into account as well.

That is undoubtedly a great merit of that measure as it reduces the book profit value disclosed in an annual financial report by subtracting dividends paid to shareholders as a result of net profit distribution at the General Meeting of Shareholders.

### **Empirical analysis of variances between Book Profit and Economic Value Added of Energy sector companies**

The last part of the study presents practical differences between the book profit and EVA measure.

A PGE and TAURON companies will be analysed. In its annual financial report the following financial figures were disclosed as of the end of the 31 December 2012 – 31 December 2013 financial year:

**Table 2. Data obtained from the PGE and TAURON annual financial reports (in thousands PLN)**

Component	PGE		TAURON	
	31 Dec 2012	31 Dec 2013	31 Dec 2012	31 Dec 2013
Sales Revenues	30 481 076	30 144 855	24 752 985	19 131 122
EBIT	4 377 759	5 060 441	2 165 129	1 934 066
Net Profit	3 644 185	4 143 163	1 476 392	1 308 318
Assets	56 703 604	60 751 308	31 273 677	32 355 570
Equity	40 716 929	43 381 917	16 306 681	17 327 165
Long-term liabilities	8 474 881	9 312 536	9 081 234	9 304 341
Current liabilities	7 217 437	7 790 509	5 392 423	5 257 730

Source: own work based on [www.gkpge.pl](http://www.gkpge.pl) and [www.tauron-pe.pl](http://www.tauron-pe.pl) – access date: 05.12.2014.

The table below presents supplementary information necessary to determine the economic value added figure.

**Table 3. Supplementary information concerning the PGE and TAURON**

Component	PGE		TAURON	
	31 Dec 2012	31 Dec 2013	31 Dec 2012	31 Dec 2013
Corporate income tax rate	19 %	19 %	19 %	19 %
WACC	6,6 %	6,2 %	6,3 %	5,6 %
Number of shares	1 869 760 829	1 869 760 829	1 752 549 394	1 752 549 394
Dividend per share	0,86	1,10	0,20	0,15

Source: own work based on [www.gkpge.pl](http://www.gkpge.pl) and [www.tauron-pe.pl](http://www.tauron-pe.pl) – access date: 06.12.2014.

The above data allowed arriving at the following values of financial measures:

**Table 4. Financial measures for the PGE Company**

Component	31 Dec 2012	31 Dec 2013	Dynamics/ change
Net profit	3 644 185	4 143 163	+ 13,7 %
ROS	12,0 %	13,7 %	+ 1,7 p.p.
ROE	9,0 %	9,6 %	+ 0,6 p.p.
ROA	6,4 %	6,8 %	+ 0,4 p.p.
EVA	279 897 768	815 387 672	+ 291,3 %
Relationship between EVA and net profit	7,7 %	19,7 %	+ 12,0 p.p.

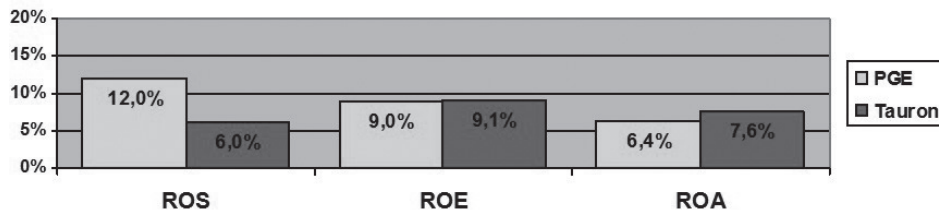
Source: own calculations based on data in Tables 2 and 3.

**Table 5. Financial measures for the TAURON Company**

Component	31 Dec 2012	31 Dec 2013	Dynamics/ change
Net profit	1 476 392	1 308 318	(11,4 %)
ROS	6,0 %	6,8 %	+ 0,8 p.p.
ROE	9,1 %	7,6 %	(1,5 p.p.)
ROA	4,7 %	4,0 %	(0,7 p.p.)
EVA	123 235 488	49 144 420	(60,1 %)
Relationship between EVA and net profit	8,3 %	3,8 %	(4,5 p.p.)

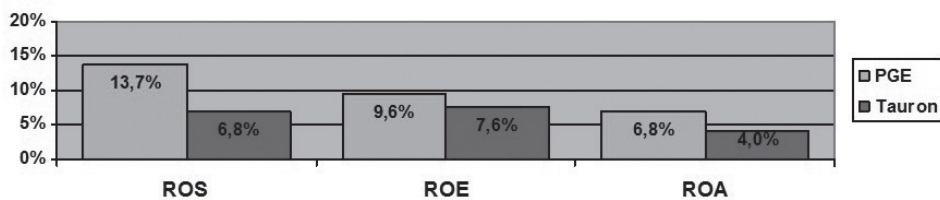
Source: own calculations based on data in Tables 2 and 3.

**Figure 1. Profitability ratios for PGE and TAURON companies in 2012 year**



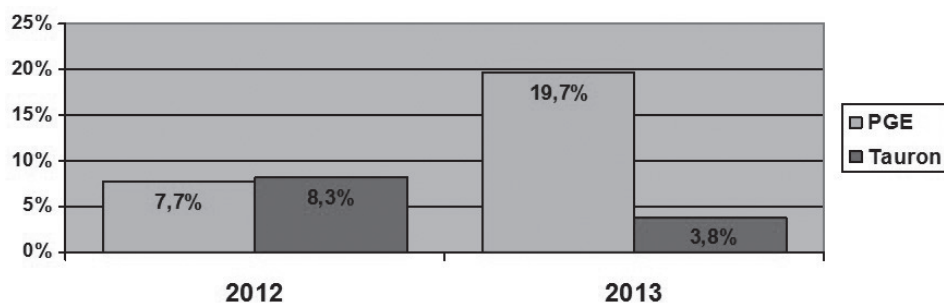
Source: own work based on data in Table 5.

**Figure 2. Profitability ratios for PGE and TAURON companies in 2013 year**



Source: own work based on data in Table 5.

**Figure 3. Relationship between EVA and net profit for PGE and TAURON in 2012 – 2013 periods**



Source: own work based on data in Table 5.



Analysis results presented in the above tables and figures clearly show differentiation of the results obtained by traditional methods, and EVA.

In the case of PGE Company its level of profitability has recorded a slight increase in analyzed period (from 0,4 to 1,7 percentage points). However, in the same period the EVA's level has increased by nearly 300% and the ratio of EVA to net profit by 12 percentage points.

The situation in terms of profitability in TAURON Company has slightly deteriorated in the analyzed period (ROE's level has decreased by 1,5 percentage points). Analyzing the same company using the Economic Value Added, it turned out that the indicator's value has decreased in the same period by more than 60 %, and EVA's to net profit ratio has decreased by 55%.

In 2013, ROE's level for PGE was higher by 2 percentage points than in TAURON Company, while in the same year, EVA's to net profit ratio was higher in the case of PGE by almost 16 percentage points, which means a much greater difference between these two enterprises in area of their financial condition.

## Conclusions

The purpose, formulated in the introduction has been reached. Research hypothesis can be positively confirmed.

Results of the analysis make possible to confirm the possibility of obtaining different results in the assessment of the financial situation of the company in the case of application financial ratios, based on a different approach to the financial information provided by the business entities.

PGE and TAURON case confirms higher objectivity of financial indicators based on residual income like EVA than traditional measures like profitability ratios.

The increasing popularity, both in literature and in everyday practice, of economic measures that take into account the total cost of capital incurred by business entities should also be emphasised.

Those measures are more and more commonly used, in particular when faced with the fact that modern concepts of finance management and enterprise value appraisal set an increase in market value, rather than the earlier maximization of book profit are the most important purpose of the company.

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## **Long-Term Borrowing and Intergenerational Redistribution of Public Debt. The Case of Central and Eastern EU Member States**

### **Abstract**

The paper analyses the burden on the future generation resulting from the need to repay public debt in Central and Eastern EU Member States. The main theme is accompanied by the following research hypothesis: imbalance in public finances makes public authorities use long-term government securities more intensely. The hypothesis was verified based on the analysis of statistical data from Eurostat, European Central Bank and the OECD.

**Key words:** public debt, term structure, long-term government securities.

### **Introduction**

Imbalance in public finances across the globe increases the demand for financial resources coming from loans, borrowings or the issuing of debt instruments. Minimising the liquidity risk for state budgets and debt refinancing risk, public debt managers strive to replace short-term debt with long-term instruments. Instruments with maturities up to several or even several dozen years are used more and more frequently. It means shifting the financing of current consumption expenditure onto the next generations, which may restrict growth possibilities in the future. The problem faces not only highly developed countries but also developing and the fastest growing economies. On the one hand, they are forced to struggle with excessive deficit and public

debt while, on the other hand, they use public debt to finance current and investment expenditure. Relatively good ratings of public debt securities and increasing investors' trust let these countries take out long-term liabilities.

The paper aims at analysing the burden on the future generation caused by the need to repay public debt in Central and Eastern EU Member States. The principal objective is accompanied by the following research hypothesis: imbalance in public finances increases the use of public debt securities with long maturity periods. The thesis was verified based on statistical data from Eurostat, European Central Bank and the OECD databases. The study was conducted for 11 EU Member States: Bulgaria, Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia, and Slovenia. The research covered the period 2002–2013.

### **The concept of intergenerational public debt redistribution**

Intergenerational redistribution effects in the field of public finances refer, *inter alia*, to tax aspects, transfers and public debt [Lindbeck, Weibull 1986, pp. 239–267]. They are discussed in the context of their long-term impact upon the economy [Barro 1974, pp. 1095–1117]. To describe the mechanism we use, e.g., the theory of permanent income and rigid, sustainable budget constraints for public authorities [Barro 1989, pp. 37–54]. The assumptions of intergenerational redistribution model are challenged [Carmichael 1982]. However, in literature we can find a view that the authorities may, to a certain extent, be forced to shift the burden to future generations [Miles and Cerny 2006; Laffargue 2009, pp. 79–104] even though it could provoke negative effects dangerous for the economy [Heller 2003, pp. 2–3]. The government, wishing to finance specific expenditure categories, faces a dilemma whether it should increase taxes or take on public debt. By choosing the second option, it may, additionally, delay the necessity of payments for the current consumption and shift the repayment of some of its liabilities to the next generation.

Shifting the financing of current expenditure (current consumption) to the next generation means its representatives will have to pay all associated costs. Under such circumstances, not only the needs of the next generation are ignored but also its standard of living is threatened by such costs [see: Tabellini 1991]. Besides, one should worry about the possibility that the next generation will do the same and will postpone some of its current expenditure by the following several dozen years. It is possible due to financial markets development and relatively high ratings given also to countries with excessive debt volumes [see: Gaillard 2014, pp. 208–224; Téllez-Valle and Martín-García 2014, pp. 16–33]. This, in turn, may result in intergenerational public debt rollover

at a large scale. Such a permanent imbalance of public finances may reduce the credibility of public authorities as creditors, lower the ratings of their debt securities and provoke further, increasing problems of the sector in individual countries.

Wishing to avoid such problems, the governments may try and limit public expenditure. Recently growing problems with excessive budget deficits and public debt have made many countries follow this line. That solution, however, is very difficult [for more see, e.g.: Głuchowski et al. 2005; Piotrowska-Marczak 2008, pp. 686–690]. The value and structure of public expenditure are direct consequences of tasks assumed by the State and are determined by the adopted model of the economic system. Problems with the scale and structure of expenditure result from both economic and financial as well as legal conditions, which are deeply rooted in historical and present situation [for more see: Kosikowski 2011, pp. 111–123]. Some spendings are „rigid” [Owsiak 2005, pp. 575–577], meaning they must be paid irrespective of the economic standing of the country, since they have been provided for in laws and executive acts. Secondly, expenditure cuts in the social area are negatively perceived by the public opinion. Hence reductions are usually limited to „flexible” expenditure (e.g. investment outlays), which may improve economic potential and boost the growth of individual countries.

On the other hand, governments in many countries (even those heavily indebted) try to stimulate the economy with additional public expenditure designed to increase demand or support economic operators (often rescuing them from bankruptcy). Hence a question emerges: should we restrict such expenditure or, on the contrary, should we use it as a tool in support of economic growth. Independently of the adopted solution, most of the Central and Eastern EU Member States run rather high budget deficits, which must be financed. The only decision to take is the time horizon for the maturity of debt instruments issued to cover the deficits. Very long maturity shall mean shifting some of the debt on the next generation.

### **Methodology and data**

The idea of intergenerational redistribution of public debt links to the debt refinancing risk management and budget liquidity risk. Debt managers limit the risk by using financial instruments with longer maturities. Thus, to evaluate the scope of redistribution we may use the measures of refinancing risk. They have been discussed in literature for many years already [see e.g.: Luckett 1964, pp. 148–157]. Not all of them can be applied in comparative studies including many countries. Obstacles include the absence of data or various

calculation methods in individual statistical systems (which makes the results incomparable), but also limited credibility of data used for calculations [Seung 2009, pp. 510–532]. Hence for empirical analyses we use the average time to maturity – ATM ratio. It is a synthetic measure of refinancing risk used in international comparisons and calculated in a standardised way by, e.g., the European Central Bank and the OECD. The ATM indicator can be interpreted as an average time for which a debt is repaid. High value of the indicator, representing long repayment periods, suggests lower refinancing risk (the need to raise resources to repay the debt occurs relatively rarely) [Uryszek 2011, pp. 66–77]. The ATM method is well recognized in the literature and used for many years (the way of its calculation is sometimes slightly different, but the idea always stays the same) to assess the government debt instruments market [Schmuklera and Vesperoni 2006, pp. 183–207] as well as to calculate the level of investment risk of bonds portfolios [Rivel 1949, pp. 342–347]. We must remember that ATM, as the average measure, can give misleading results [see: Yawitz et al. 1975, pp. p325–333]. However, ATM can be used for initial analyses. It has also been used in the literature for international comparisons [see e.g.: Colliac and Lapteacru 2008, pp. 94–111; Schmuklera and Vesperoni 2006, pp. 183–207].

In order to assess intergenerational redistribution of public debt more profoundly we must analyse long-term liabilities of the EU Member States. The paper studies the primary term structure of public liabilities and focuses on debt instruments with the maturity between 15 – 30 and more than 30 years. Primary maturity structure of such instruments enables to assess the average period for which public debt has been taken on, from the moment it was issued until it has been repaid. It informs about debt maturity periods and helps, inter alia, assess the use of long-term debt instruments by public authorities in different countries.

In the context of the objective of this paper we should pay special attention and check whether the lowering of refinancing risk by extending debt maturity does not shift repayment periods to future generations. To ensure the comparability of the results for particular countries, the statistical data were taken from Eurostat, European Central Bank and the OECD (instead of the national statistical offices). The study was conducted for 11 Central and Eastern EU Member States, already mentioned in the Introduction. These have been countries in transition from centrally planned to free market economy, currently being at the different level of development, but, generally speaking, having similar history and experience. The research covered the period 2002–2013.



**Public debt in Central and Eastern EU Member States**

Public debt in Central and Eastern EU Member States is relatively lower than that of the so called “Fifteen”. This is due to several factors. Firstly, the history of free market economy in these countries is much shorter than in the countries of the „old EU”. They began taking debt as late as in the 1990s. We should also stress that in some of the countries included in the survey indebtedness has not increased rapidly (see Table 1). Moreover, some of them managed even to significantly reduce public debt. The latter, in turn, results from the need to take care of the stability of public finances and of the economy. Negative changes in this respect could reduce the ratings by rating agencies and cause further negative effects for the economy. Rating agencies very carefully analyse macroeconomic variables of the Central and East European countries, which they consider emerging markets. Evaluation procedures in this case are very detailed [Erdem & Varli 2014, pp. 42–57].

Table 1. Public debt in Central and Eastern EU Member States

Area	Unit	2002	2004	2006	2008	2010	2012	2013
EU	Million euro	6 020 363	6 625 646	7 226 947	7 783 760	9 861 266	11 046 910	11 386 019
	% GDP	60,3	62,1	61,4	62,0	79,9	85,2	87,1
Bulgaria	Million euro	8 890	7 526	5 721	4 848	5 856	7 357	7 533
	% GDP	52,4	37,0	21,6	13,7	16,2	18,4	18,9
Croatia	Million euro	9 805	12 325	14 132	13 989	19 737	24 304	28 873
	% GDP	35,1	38,2	35,7	30,0	45,0	55,9	67,1
Czech Rep.	Million euro	22 006	27 829	34 496	41 092	58 034	70 576	65 199
	% GDP	27,1	28,9	28,3	28,7	38,4	46,2	46,0
Estonia	Million euro	446	487	591	737	961	1 712	1 845
	% GDP	5,7	5,0	4,4	4,5	6,7	9,8	10,0
Latvia	Million euro	1 103	1 580	1 693	4 534	8 096	9 013	8 873
	% GDP	13,6	15,0	10,7	19,8	44,5	40,8	38,1
Lithuania	Million euro	3 366	3 520	4 327	5 032	10 463	13 333	13 645
	% GDP	22,2	19,3	17,9	15,5	37,8	40,5	39,4
Hungary	Million euro	40 517	49 991	61 977	72 628	78 369	76 609	77 660
	% GDP	55,9	59,5	65,9	73,0	82,2	79,8	79,2

Poland	Million euro	84 779	103 412	132 090	144 660	195 568	217 691	224 468
	% GDP	42,2	45,7	47,7	47,1	54,9	55,6	57,0
Romania	Million euro	10 757	11 769	12 586	17 159	37 451	50 128	54 003
	% GDP	24,9	18,7	12,4	13,4	30,5	38,0	38,4
Slovakia	Million euro	11 599	14 561	14 697	18 624	26 998	37 439	39 975
	% GDP	43,4	41,5	30,5	27,9	41,0	52,7	55,4
Slovenia	Million euro	6 708	7 425	8 204	8 180	13 742	19 204	25 307
	% GDP	27,8	27,3	26,4	22,0	38,7	54,4	71,7

Source: developed by the author based on the Eurostat data: *Government deficit/surplus, debt and associated data (gov\_dd\_edpt)* – access date: 10.10.2014.

As one could expect, recent financial crisis considerably increased the debt in most analysed countries. It is worth noting, however, that even then all the Central and Eastern EU Member States (except of Hungary in 2006–2013 and Croatia in 2013) formally met the fiscal criterion of the Maastricht Treaty connected with the maximum public debt volume. Hungary introduced bold reforms aimed at reducing public debt. Nevertheless, most of the surveyed countries ran relatively high budget deficits which made them issue public debt securities. Public debt management called for an active shaping of the debt structure in terms of its origins, instruments, currencies and periods. Management of maturity periods had an impact upon the decisions on the maturity of applied debt instruments.

#### **Average time to maturity of public debt instruments**

The analysis of data concerning the average maturity of the debt issued by the public sector does not suggest any problems with shifting the liabilities to future generations. An average ATM in analysed countries was ca. 5.5 years. In most countries little extension was recorded and the changes were minor. Only in Bulgaria ATM clearly decreases. Details are presented in Table 2.

**Table 2. Average time to maturity of public debt in Central and Eastern EU Member States (by years)**

Country	2002	2004	2006	2008	2010	2012	2013
Bulgaria	10,1	7,9	7,5	7,2	7,1	6,1	6,7
Croatia	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Czech Rep.	3,2	5,1	6,2	6,4	6,3	n/a	n/a
Estonia	6,0	5,0	5,0	7,0	6,0	5,0	5,0
Hungary	n/a	n/a	n/a	n/a	6,6	5,9	5,0
Latvia	4,8	5,5	6,4	5,0	6,7	6,2	5,7
Lithuania	3,5	4,1	4,6	4,5	4,6	4,7	4,6
Poland	4,0	4,0	5,0	5,0	5,0	5,0	5,0
Romania	4,1	4,8	7,6	4,0	5,7	4,1	4,4
Slovakia	3,3	4,7	5,1	4,7	5,7	n/a	n/a
Slovenia	6,5	5,6	5,7	6,0	6,1	6,1	5,4

Source: developed by the author based on the European Central Bank data: *Statistical Data Warehouse* and OECD data: *OECD.StatExtracts* – access date: 10.10.2014.

The analysis of ATM ratios does not allow to conclude whether the risk of shifting the repayment of public debt to the next generation is high in analysed countries. Average maturity time of public debt is a few years and thus future generations will hardly be effected.

We cannot also clearly link the increase in public debt volume with the extension of average maturity of debt instruments in all countries covered by the study. Correlation analysis for these two variables showed strong positive statistical relationship in five cases (out of 9, for which data on public debt and ATM were available). In other countries it was minor (or even negative). It may mean that increasing demand of public authorities for financial resources in some analysed countries was largely covered by short- and medium-term debt instruments.

However, we must bear in mind that average maturity ratios inform us only about average periods for which public debt is taken and their interpretation may be mistaken. Hence, in order to deepen the analysis it is necessary to analyse long-term debt in EU countries.

#### **Long-term instruments in the structure of public debt**

The share of debt instruments with very long maturities in the total public debt structure was ca. 14% in the period covered by the study (see Table 3). The share of instruments with maturities 15–30 years was much bigger than that of debt instruments with maturities exceeding 30 years. The share of the first group in public debt structure in the years 2012 and 2013 ranged from 5.3% in the Czech Republic (in 2012) to 40% in Latvia in 2013. Instruments with maturities exceeding 30 years accounted for 0.1% of the debt in Croatia and over 5% in Slovakia. These values may seem insignificant but we must remember that they represent millions or billions of euro which will be paid back for over 15 or even 30 years. That is clearly visible when we analyse per capita amounts.

**Table 3. Debt in Central and Eastern EU Member States caused by debt instruments with the maturity not shorter than 15 years**

Country	Maturity at issue	2012			2013		
		million EUR	EUR per capita	Percentage of total (%)	million EUR	EUR per capita	Percentage of total (%)
Bulgaria	15–30 years	n/a	n/a	n/a	n/a	n/a	n/a
	more than 30 years	n/a	n/a	n/a	n/a	n/a	n/a
Croatia	15–30 years	1 784,3	417,3	7,3	1 806,6	423,9	6,3
	more than 30 years	34,9	8,2	0,1	35,0	8,2	0,1
Czech Rep.	15–30 years	3 719,5	354,1	5,3	4 004,0	380,7	6,1
	more than 30 years	2 543,4	242,1	3,6	1 538,4	146,3	2,4
Estonia	15–30 years	168,5	127,1	9,8	178,5	135,2	9,7
	more than 30 years	62,2	46,9	3,6	57,0	43,2	3,1
Hungary	15–30 years	n/a	n/a	n/a	n/a	n/a	n/a
	more than 30 years	n/a	n/a	n/a	n/a	n/a	n/a
Latvia	15–30 years	627,4	306,8	7,0	3 581,4	1 769,6	40,4
	more than 30 years	90,9	44,5	1,0	88,8	43,9	1,0
Lithuania	15–30 years	1 380,1	459,5	10,4	1 430,1	481,2	10,5
	more than 30 years	n/a	n/a	n/a	n/a	n/a	n/a

Poland	15–30 years	20 973,5	544,2	9,6	21 726,9	n/a	9,7
	more than 30 years	4 673,3	121,3	2,1	5 269,8	136,8	2,3
Romania	15–30 years	7 050,0	350,8	14,1	8 364,0	417,8	15,5
	more than 30 years	322,9	16,1	0,6	340,4	17,0	0,6
Slovakia	15–30 years	3 278,0	606,6	8,8	5 111,8	944,7	12,8
	more than 30 years	1 619,7	299,7	4,3	2 020,2	373,4	5,1
Slovenia	15–30 years	2 422,0	1 178,3	12,6	2 879,4	1 398,6	11,4
	more than 30 years	445,9	216,9	2,3	328,1	159,4	1,3

Source: developed by the author based on the Eurostat data: *Structure of government debt (gov\_dd\_sgd)* and *Demographic balance and crude rates (demo\_gind)* – access date: 10.10.2014.

Analyses of long-term debt should be confronted with the prior assessment of average maturities. We may conclude that relatively low ATM ratios do not mean debt instruments with very long maturities have been given up. Although their share in the total public debt is relatively small for most of the analysed countries, it cannot be considered negligible.

### Conclusion

Conducted analyses let us conclude that currently intergenerational debt redistribution is not the major issue of public finances in Central and Eastern EU Member States. Increasing public debt in these countries does not imply proportional increases of debt with very long maturities. That is demonstrated by average maturity ratios for public debt instruments, which amount to several years in the countries included in the study. It does not mean, however, that the problem does not exist. The countries use debt instruments with maturities of at least 15 years (and also exceeding 30 years). It means some public liabilities will have to be paid for many years to come and may also be shifted to the next generation. Thus assumptions of the initial hypothesis can be confirmed. Significant use of long-term debt instruments means the Central and Eastern EU Member States purposefully shift some of their financial commitments to the next generation. If the practice intensifies, it may significantly impact imbalances in the public finances in a relatively distant future (for the next generation). In order to avoid it, these countries should not only closely scrutinise debt refinancing risk in short- and medium-term but also take care of long-term debt structure by limiting the use of instruments with maturities reaching several dozen years.

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