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Preface

Dear Reader,

We present you with the 29th edition of the “Journal of Management and Financial Sciences”. We hope that its content will make a valid contribution to the development of economic thought and contribute to a deeper understanding of complex issues discussed in it.

In the paper “Fiscal Multiplier Determinants in the CESEE Region”, the authors – Milan Deskar-Škrbić, Hrvoje Šimović, Antonija Buljanwe – use a panel VAR model with exogenous variables to analyse the effects of various structural characteristics of the economies on the effectiveness of government consumption in the Central Eastern and Southeastern European region (CESEE). They analyse the effects of government consumption on economic growth in this region, controlling for the effects of the size of the economy, level of public debt, level of tax burden, openness of the economy, rigidity of the labour market, monetary regime and the phase of the business cycle. The results of this analysis indicate that these characteristics have a significant impact on the effectiveness of fiscal policy (in terms of the size of the fiscal multiplier).

The author of the article entitled “Strategic Dimension of Innovation” – Maria Romanowska – presents the conceptualisation of one of the aspects of strategic dimension of innovation: the choice of the method of innovation activities carried out by enterprises. Original proposals of strategy models are presented against the background of innovation strategy models described in literature, and the method of their identification is illustrated using case studies of five Polish innovation enterprises.

The aim of the next paper, “Executive Compensation: Its Structure, Links to Company Performance, Executives’ Perception, and International Differences” by Jacek Miroński and Rafał Dembowski, is a review of contemporary executive compensation schemes including their structure and links to company performance. The research
conclusions prove that executive compensation maximizing benefits for a firm should not only address the principal-agent problem through properly designed incentives, but also reduce a manager’s propensity to excessive risk-taking. Finally, it provides practical recommendations for compensation committees how to effectively design remuneration policies.

The next paper “Should Investors on Equity Markets be Superstitious (on the Example of 52 World Stock Indices)” by Krzysztof Borowski considers the problem of efficiency of financial markets, especially the weekend effect has always fascinated scientists. This paper tests the hypothesis of the unfortunate dates effect upon 52 equity indices in relation to the following four approaches: close – close, overnight, open-open, open-close, calculated for the sessions falling on the 13th and 4th day of the month, Friday the 13th, Tuesday the 13th. The last part of the paper consists of an analysis of the correlation coefficients of Friday the 13th (close-close) rates of return calculated for the analysed equity indices’ pairs.

The objective of the next paper “IPO as a VC Funds Type of Exit” by Dorota Podedworna-Tarnowska is to show the success and profitability of going public by VC funds. The VC’s exit type as a way of cashing out on its investment in a portfolio company is a consequence of the exit strategy which means the plan for generating profits for the owners and investors of a company. While an IPO is the most spectacular and visible form of exit, it is not the most common one, as historically in the US it was, but still in Europe it has not been yet. There will be both literature and statistical data used in this research, coming from different studies and reports.

The aim of the article “The Role of the Polish Private Equity Sector in the CEE Region” by Jacek Grzywacz and Ewa Jagodzińska – Komar is to analyse the position of the Polish private equity sector as a leading player in the CEE region and to assess the impact of these funds on economic development. The conclusions and directions of the role of private equity funds were presented, and it was emphasised that Poland and the whole CEE region are at an early stage of their market development, but their distance to Western Europe decreases from year to year. Currently, the CEE private equity market in the most developed countries offers great opportunities to its investors, thanks to high competition, high growth potential and comprehensive solutions.

The next paper – “Information and Statistical Efforts of Selected Safety Network Institutions in the Area of Financial System Stability” by Piotr Komorowski and Dariusz Filip presents the role of financial system stability as a public good. The authors claim that the main role of the financial safety network is to stabilise the system. An overview and analysis of selected studies addressing financial system stability helped the authors draw theoretical and practical conclusions as to the stability itself and the impact of information and statistics upon its improvement.
Waldemar Rogowski, in his first of two articles about payment delays entitled “Deferred Payment, Late Payment, Payment Backlog and How They Are Interconnected” discusses the problem of payment delays in commercial B2B transactions and payment backlogs resulting from them. It also aims at identifying linkages among deferred payments, late payments, and payment backlogs taking account of the scale of these phenomena in Poland, as well as in other countries. The paper provides recommendations as to what should be done to reduce the scale of these negative phenomena.

Joanna Dominowska in her paper “Effectiveness of State Supervision and Control of Foundations’ Economic Activity” claims that the Polish system of law does not include effective and fast supervision and control measures of economic activities conducted by foundations, and the supervision is inconsistent and ineffective. The research showed the necessity for the creation of uniform standards of supervision of foundations, including a uniform report form. The summary of the research presented remarks de lege ferenda concerning changes in the legal regulations on foundations’ supervision, including the economic activities conducted by foundations.

Tobias Hagemann in his paper “Attribution of Profits Derived Before or After the Existence of a Permanent Establishment under Tax Treaty Law” discusses attribution of profits under tax treaty law provided for by the OECD Model Tax Convention. In doing so, it is found that profits derived before or after the existence of a PE should be attributed to the PE because not only the wording but also the context and purpose of the OECD Model support this view. In further analysis, however, it is shown that slight changes in attribution may be expected under the new “Authorised OECD Approach”.

We wish you a pleasant reading.

Ryszard Bartkowiak,
Chairman of the Scientific Council and Dean of the Faculty
Michał Matusewicz,
Vice-Chairman of the Scientific Council and Vice-Dean of the Faculty
Fiscal Multiplier Determinants in the CESEE Region

Abstract

In this paper we use the panel VAR model with exogenous variables to analyse the effects of various structural characteristics of the economies on the effectiveness of government consumption in the Central Eastern and Southeastern European region (CESEE). More precisely, we analyse the effects of government consumption on economic growth in this region, controlling for the effects of the size of the economy, level of public debt, level of tax burden, openness of the economy, rigidity of the labour market, monetary regime and the phase of the business cycle. Our results indicate that these characteristics have a significant impact on the effectiveness of fiscal policy (in terms of the size of the fiscal multiplier). Also, these effects are in line with the theoretical assumptions as the recessionary phase of the cycle, size of the economy, rigidity of the labour market and the fixed exchange rate...
regime increase the average size of fiscal multipliers while tax burden, indebtedness and openness of the economies reduce the size of the fiscal multiplier, when compared to the base model.

**Keywords:** fiscal multipliers, CESEE region, panel VAR

**JEL Codes:** E60, E62, C23

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### 1. Introduction

The importance and possibilities of fiscal policy were neglected by the academia and by the policy makers for decades after the revolution of macroeconomics in the 1970/80 s. However, the Great Recession, euro zone crisis and prolonged recession in many European economies have put fiscal policy, especially its stabilization role, in the middle of expert and public discussions again recently. The role of fiscal policy is especially important in the countries which are characterized by the high share of the government sector in the economy and whose monetary policy is limited by various structural characteristics of the economy and financial system, which make fiscal policy the main economic policy channel and lever. Exactly these characteristics typify most of the countries in the Central Eastern and Southeastern European (CESEE) region, which makes this region convenient for the analysis of the effectiveness of fiscal policy.

Thus, in this paper we conduct an empirical analysis of the effects of government consumption on the economic growth through the concept and size of the fiscal multiplier in eleven selected CESEE countries, namely Bulgaria, Croatia, the Czech Republic, Hungary, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia and Slovenia. However, the aim of this paper is not only to estimate the size and a sign of fiscal multiplier in selected CESEE countries, but also to analyse the determinants of its size, based on various characteristics of the selected economies: the size of the economy, level of public debt, level of tax burden, openness of the economy, rigidity of the labour market, monetary regime and the phase of the business cycle.

Our methodological approach relies on the panel VAR analysis, with the introduction of exogenous “control” variables, which allows us to: (i) estimate the size of the fiscal multiplier in the panel framework and (ii) to analyse the effect of aforementioned determinants on the size of the fiscal multiplier, i.e. on the effectiveness
of government consumption. Our sample covers eleven economies and ten years (2006-2015), which gives us a relatively small, but still acceptable sample size.²

The paper is structured as follows. After the introduction in the second part of the paper we present a literature overview, mostly focusing on the panel VAR approaches. In the third part we briefly present our methodological approach and data, which is followed by the discussion of the results in the fourth part of the paper. In the last part of the paper we present the concluding remarks.

2. Literature Review

Following the empirical approach employed in the paper, the literature review is focused mainly on papers using the panel VAR and SVAR methodology in analysing the determinants of fiscal multipliers. Table 1 gives a brief literature overview on determinants of government consumption multipliers. Most of the reviewed literature is based on a heterogeneous sample of countries, including both advanced and emerging economies. Very few papers estimate fiscal multipliers and their determinants for emerging economies only.

Starting with the level of public debt, the theory indicates that a higher government debt-to-GDP ratio decreases the government consumption multiplier due to a higher risk premium and a decrease in private sector confidence which is consequently de-stimulating consumption and investment. This determinant is often accounted for in the empirical literature, which generally confirms the theory (Ilzetzki et al., 2013³; Hory, 2016⁴; Deskar-Škrbić and Šimović, 2015⁵).

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² Our sample is determined by data availability and comparability of the countries.
<table>
<thead>
<tr>
<th>Determinants</th>
<th>Authors</th>
<th>Country</th>
<th>Time period</th>
<th>Methodology</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of public debt</strong></td>
<td>Ilzetzki et al. (2013)</td>
<td>44 EMEs and AEs</td>
<td>1960Q1–2007Q4</td>
<td>Panel SVAR</td>
<td>A higher government debt-to-GDP ratio decreases consumption multipliers</td>
</tr>
<tr>
<td></td>
<td>Hory (2016)</td>
<td>48 EMEs and AEs</td>
<td>1990Q1–2013Q4</td>
<td>PVAR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contreras Banco and Battelle (2014)</td>
<td>55 EMEs and AEs</td>
<td>1988Q1-2010Q4</td>
<td>GMM estimator, panel SVAR model</td>
<td>Government consumption multiplier equal to zero in high-debt countries</td>
</tr>
<tr>
<td><strong>Trade openness</strong></td>
<td>Ilzetzki et al. (2013)</td>
<td>44 EMEs &amp; AEs</td>
<td>1960Q1–2007Q4</td>
<td>Panel SVAR</td>
<td>Trade openness reduces the government consumption multiplier</td>
</tr>
<tr>
<td></td>
<td>Kraay (2013)</td>
<td>102 EMEs and AEs</td>
<td>1970–2010</td>
<td>OLS, 2SLS, and first-stage regressions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OECD (2009)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Labour market rigidity</strong></td>
<td>Cole and Ohanian (2004)</td>
<td>US</td>
<td>DSE</td>
<td></td>
<td>Labour market rigidities increase FM (if imply wage rigidities)</td>
</tr>
<tr>
<td></td>
<td>Gorodnichenko et al. (2012)</td>
<td>Finland</td>
<td>DSGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Business cycle phase</strong></td>
<td>Kraay (2013)</td>
<td>102 EMEs and AEs</td>
<td>1970–2010</td>
<td>OLS, 2SLS, and first-stage regressions</td>
<td>Government consumption multipliers are higher in recessions</td>
</tr>
<tr>
<td></td>
<td>Corsetti et al. (2012)</td>
<td>17 OECD countries</td>
<td>1975–2008</td>
<td>PVAR</td>
<td></td>
</tr>
<tr>
<td>Exchange rate regime</td>
<td>Author(s) (Year)</td>
<td>Sample Size</td>
<td>Time Period</td>
<td>Methodology</td>
<td>Government Consumption Multipliers</td>
</tr>
<tr>
<td>----------------------</td>
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<tr>
<td></td>
<td>Ilzetzki et al. (2013)</td>
<td>44 EMEs &amp; AEs</td>
<td>1960Q1–2007Q4</td>
<td>Panel SVAR</td>
<td>higher in the fixed exchange rate regime</td>
</tr>
<tr>
<td></td>
<td>Kraay (2013)</td>
<td>102 EMEs and AEs</td>
<td>1970–2010</td>
<td>OLS, 2SLS, and first-stage regressions</td>
<td>larger in the flexible exchange rate regime</td>
</tr>
<tr>
<td></td>
<td>Contreras Banco and Battelle (2014)</td>
<td>55 EMEs and AEs</td>
<td>1988Q1-2010Q4</td>
<td>GMM estimator, panel SVAR model</td>
<td>equals to zero in the flexible exchange rate regime</td>
</tr>
<tr>
<td>Development</td>
<td>Ilzetzki et al. (2013)</td>
<td>44 EMEs &amp; AEs</td>
<td>1960Q1–2007Q4</td>
<td>Panel SVAR</td>
<td>higher in AEs</td>
</tr>
<tr>
<td></td>
<td>Hory (2016)</td>
<td>48 EMEs and AEs</td>
<td>1990Q1-2013Q4</td>
<td>PVAR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kraay (2013)</td>
<td>102 EMEs and AEs</td>
<td>1970–2010</td>
<td>OLS, 2SLS, and first-stage regressions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contreras Banco and Battelle (2014)</td>
<td>55 EMEs and AEs</td>
<td>1988Q1-2010Q4</td>
<td>GMM estimator, panel SVAR</td>
<td>Positive and larger government consumption multiplier in developing than in high-income countries</td>
</tr>
</tbody>
</table>

Source: the authors’ elaboration.
When it comes to trade openness, another determinant broadly observed, especially for small open economies, the theory suggests that countries more open to trade have a lower government consumption multiplier due to outflow effects. The surveyed empirical literature is in line with the previous hypothesis (Ilzetzki et al., 2013; Kraay, 2013; Silva et al., 2013; Deskar-Škrbić et al., 2014; Deskar-Škrbić and Šimović, 2015).

Regarding labour market rigidity, theory suggests that a more rigid labour market is less responsive to economic movements, thus reduces the effectiveness of fiscal policy. Cole and Ohanian (2004) and Gorodnichenko et al. (2012) find that labour market rigidities increase FM.

Another determinant of the multiplier size often investigated in empirical literature is the business cycle phase. The reviewed papers (Kraay, 2013; Silva et al., 2013; Corsetti et al., 2012; Grdović Gnip, 2014) confirm that government consumption multipliers are higher in recessions.

The reviewed literature on the exchange rate regime is ambiguous. Ilzetzki et al. (2013) find that government consumption multipliers are higher in the fixed exchange rate regime while Kraay (2013) claims that the government consumption multiplier is larger in the flexible exchange rate regime. On the other hand, Contreras Banco and Battelle (2014) find that the government consumption multiplier is equal to zero in the flexible exchange rate regime.

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6 Ilzetzki et al., op. cit.
9 Deskar-Škrbić et al., op. cit.
12 A. Kraay, op. cit.
13 Silva et al., op. cit.
16 Ilzetzki et al., op. cit.
17 A. Kraay, op. cit.
Finally, regarding the level of development, Ilzetzki et al. (2013)\textsuperscript{19}, Hory (2016)\textsuperscript{20} Kraay (2013)\textsuperscript{21} confirm that government consumption multipliers are higher in AEs while Contreras Banco and Battelle (2014)\textsuperscript{22} obtain a positive and larger government consumption multiplier in developing than in high-income countries.

3. Methodology and Data

As shown in the literature review, when assessing the effects of government consumption, most authors look through the lens of fiscal multipliers. The fiscal multiplier is the ratio in which the change in a country’s GDP is affected by government spending. The fiscal multiplier is used to measure the effect of government consumption (fiscal policy) on the subsequent level of that country. In theory, increased fiscal spending can lead to increased consumption, which then leads to a cycle of consumption and wealth creation (for more details on the fiscal multipliers see Šimović, H. & Deskar-Škrbić, M. (2013)\textsuperscript{23}).

We can divide fiscal multipliers in two main categories. The first category is the impact multiplier which measures the effect of government consumption on GDP in the first period after the shock. The second category is the cumulative multiplier which can be defined as the sum of multipliers in each period after the shock. The calculation of these multipliers is based on Equation 1 (a) and (b):

\[
\begin{align*}
\text{(a) Impact multiplier} & & \text{(b) Cumulative multiplier} \\
M &= \frac{\Delta Y(t)}{\Delta G(t)} & M &= \frac{\sum_{j=0}^{N} \Delta Y(t+j)}{\sum_{j=0}^{N} \Delta G(t+j)} \tag{1}
\end{align*}
\]

As already stated above, our methodological approach is based on the panel vector autoregression with the exogenous variables framework. Thus, our model takes the following form:

\[ Y_{it} = \beta(L)Y_{it-1} + \gamma X_{it} + \varepsilon_{it} \tag{2} \]
where $\beta(L)$ is matrix polynomials in the lag operator $L$, $\gamma$ coefficients of exogenous variables, the country pair index is $i$, the time index is $t = 1, 2, ..., T$ and $\varepsilon_i$ is the vector of errors. The endogenous variables vector $Y_{it}$ comprises the real annual change in GDP and the real annual change in government consumption, defined as the final government expenditure in national accounts. Depending on the estimated model, vector $X_{it}$ includes one of seven “control” variables: the size of the economy, level of public debt, level of tax burden, openness of the economy, rigidity of the labour market, monetary regime and the phase of the business cycle. The analysis is based on the sample of eleven economies (Bulgaria, Croatia, the Czech Republic, Hungary, Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia and Slovenia) in the 2006–2015 time period. Table 2 presents the main characteristics of the variables included in the analysis.

**Table 2. Variable list and explanations**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Characteristics</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endogenous variables ($Y_{it}$)</td>
<td>GDP</td>
<td>Real growth rate</td>
</tr>
<tr>
<td></td>
<td>Government consumption</td>
<td>Real growth rate</td>
</tr>
<tr>
<td>Exogenous ($X_{it}$)</td>
<td>Public debt</td>
<td>Share of GDP</td>
</tr>
<tr>
<td></td>
<td>Openness</td>
<td>Share of GDP (sum of imports and exports)</td>
</tr>
<tr>
<td></td>
<td>Size</td>
<td>Population (in m)</td>
</tr>
<tr>
<td></td>
<td>Tax burden</td>
<td>Share of GDP (tax revenues)</td>
</tr>
<tr>
<td></td>
<td>Labour market rigidity</td>
<td>Labour market flexibility score</td>
</tr>
<tr>
<td>Exogenous (dummy) ($X_{it}$)</td>
<td>Business cycle</td>
<td>Recession = 1</td>
</tr>
<tr>
<td></td>
<td>Monetary regime</td>
<td>Eurozone/fixed = 1</td>
</tr>
</tbody>
</table>

Source: the authors’ elaboration.

Endogenous variables are defined as an annual percentage change of gross domestic product (GDP) and final consumption expenditure of general government in 2010 constant prices, in millions of euros. Exogenous, non-binary, variables are public debt expressed as a percentage of GDP, openness of the economy, defined as a sum of imports and exports and expressed as a percentage of GDP, population in millions of citizens, tax burden defined as a share of tax revenues in GDP and labour market rigidity defined through the indicator of labour market flexibility (1-7) in the
Global Competitiveness Report Database\textsuperscript{24}. We also included two binary exogenous variables. The first variable, the business cycle dummy, is constructed in a way that it takes the value of 1 if the country of interest recorded a negative real GDP change in a particular year and 0 otherwise. The second dummy variable takes the value of 1 if the country is a member of the euro zone (Slovenia and Slovakia), unilaterally adopted the euro (Montenegro) or has the fixed exchange rate regime (Macedonia).

Before the presentation of the obtained results it is important to explain the expected effects of the included exogenous variables on the size of fiscal multipliers, i.e. the effectiveness of fiscal consumption. Following Batini et al. (2014)\textsuperscript{25}, we can divide our determinants in two groups, structural and conjectural.

Starting with the structural determinants:

(i) a high degree of trade openness reduces the size of the fiscal multiplier through the “outflow effects” of the imports;

(ii) countries with more rigid labour markets have larger fiscal multipliers since rigid wages tend to amplify the response of output to demand shocks;

(iii) countries that have the flexible exchange rate regime have lower fiscal multipliers because effects of fiscal policy on their domestic economy are limited by the effects on international flows;

(iv) countries with high levels of public debt have lower fiscal multipliers because an additional fiscal expansion can lead to an increase in the risk premium and a decrease in private sector confidence, thus de-stimulating consumption and investment;

(v) countries with a higher tax burden tend to have lower fiscal multipliers as the fiscal capacity of a country is limited and there is a stronger possibility of the prevalence of Ricardian households, and finally

(vi) large economies have large domestic markets, so the multiplicative effects of fiscal policy are stronger.

As for the conjectural determinants, as already mentioned, fiscal policy is more effective in conjectures than in the expansionary phase of the business cycle.

The summary of this discussion is given in Table 3:

\textsuperscript{24} In this paper we inverted the scale meaning that a higher value of the indicator points to the more rigid labour market.

\textsuperscript{25} Batini, N., Eyraud, L. & Weber, A., A Simple Method to Compute Fiscal Multipliers, IMF Working Paper 2014., 14/93, Washington: International Monetary Fund. Although we follow Batini et al. (2014), the determinants selected in this paper slightly differ as we included the level of tax burden and the size of the economy but we do not assess the effects of automatic stabilizers and ZLB.
### Table 3. Determinants of the size of fiscal multipliers and their expected effect

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Expected effect on the size of fiscal multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public debt</td>
<td>-</td>
</tr>
<tr>
<td>Openness</td>
<td>-</td>
</tr>
<tr>
<td>Size</td>
<td>+</td>
</tr>
<tr>
<td>Tax burden</td>
<td>-</td>
</tr>
<tr>
<td>Labour market rigidity</td>
<td>+</td>
</tr>
<tr>
<td>Fixed exchange rate</td>
<td>+</td>
</tr>
<tr>
<td>Recession</td>
<td>+</td>
</tr>
</tbody>
</table>

Source: the authors’ elaboration.

### 4. Results

The most common approach in the presentation of VAR-based results are impulse responses (IRFs). Thus, in Figure 1 we present the impulse responses functions of each estimated model, which gives us the total of eight models – the baseline model (without control, exogenous variables) and seven models including each of the aforementioned exogenous variables.

**Figure 1. Impulse response of real GDP growth to the shock in government consumption**

![Impulse response graph](image)

Note: The X-axis shows the number of periods after the shock and y-axis shows the size of the impulse (in pp). Source: the authors’ elaboration.

The estimation of the base model suggests that the average size of the fiscal multiplier in selected CESEE countries in the first year after the shock is 0.8, which is in line with the conclusions of the fiscal multiplier literature for individual countries.
in the sample (see Appendix 1). When compared to the baseline results we can see that the introduction of the business cycle dummy, monetary regime dummy, size and rigidity increase the size of the fiscal multiplier, while trade openness, tax burden and a high level of public debt decrease the size of the fiscal multiplier, in line with the assumptions presented in Table 3.

To get a clearer view on the size of fiscal multipliers, in Figure 2 we present the impact and the cumulative multipliers, ordered by the size of the multiplier, given the corresponding determinant.

![Figure 2. Size of impact and cumulative multipliers](image)

Source: the authors’ elaboration.

Looking at the cumulative responses (which can be seen as the total effect of fiscal consumption) we can conclude that recessions lead to the largest multipliers, followed by the size of the economy and the rigidity of the labour market. On the other hand, tax burden and indebtedness lead to a notable reduction in the effectiveness of fiscal policy. These results are in line with theoretical assumptions and the existing literature indicating that they are robust.

5. Conclusion

The results presented in this paper indicate that fiscal policy is an important growth determinant in the CESEE region as the increase in government consumption has a positive and relatively strong (the fiscal multiplier around 0.8) effect on economic growth. Such a result fits well to our discussion in the Introduction, where we pointed out that fiscal policy is especially important in countries whose monetary policy is constrained and in which government holds a large chunk of the economy; the characteristics of which are strongly related to the countries included in this analysis. In
addition, our results confirmed the theoretical assumptions and expert view on the effects of various structural characteristics of the countries on the effectiveness of fiscal consumption. More precisely, our analysis showed that countries that face a recession, which are larger, which have a more rigid labour market and have the fixed exchange rate (or are a member of a monetary union) tend to have larger multipliers. On the other hand, the effectiveness of fiscal policy is limited in highly open economies, economies with a high public debt level and economies with a high tax burden.

Our conclusions have some policy implications, as in our view fiscal policy makers should take all these determinants into account when making policy proposals and defining the main policy instruments. Large fiscal packages aimed at the stabilization of the domestic economy could be “wasted” if countries are characterized by the determinants that significantly reduce the size of fiscal multipliers. In that case policy makers should look beyond the traditional fiscal measures. On the other hand, some policy makers are faced with strong opposition when proposing a fiscal stimulus, but if they stress that all determinants are favorable and that the empirical and theoretical literature suggest that the proposed stimulus could be effective, critics could become more benevolent. Finally, all the discussions related to changes in fiscal consumption and/or tax policy should be founded on a systemic analysis and not so-called “fiscal alchemy”.

Acknowledgments

This work has been supported in part by the Croatian Science Foundation under project number IP-2013-11–8174, and in part by the University of Zagreb under project number DP 079–2016.

Bibliography


## Appendix

### Table A1. Short term government consumption multipliers in 11 CEE economies

<table>
<thead>
<tr>
<th>Country</th>
<th>Authors</th>
<th>Time period</th>
<th>Methodology and identification method</th>
<th>Short term government consumption multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>2003M1–2006M12</td>
<td>SVAR, Blanchard &amp; Perotti (2002)</td>
<td>0.16</td>
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<tr>
<td></td>
<td>Karagyozova-Markova et al. (2013)</td>
<td>1999 Q1–2011Q3</td>
<td>VAR, recursive identification</td>
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<td>GIMF</td>
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<td></td>
<td>TVP-VAR</td>
<td>0.3–0.15 (higher in recessions)</td>
</tr>
<tr>
<td>Czech</td>
<td>Franta (2012)</td>
<td>1999Q1–2011Q3</td>
<td>VAR, recursive identification</td>
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<tr>
<td>Republic</td>
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<td>VAR, sign restrictions</td>
<td>1.43</td>
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<td>Klyuev and Snudden (2011)</td>
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<td>Ambrisko et al. (2013)</td>
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<td></td>
<td>Babecký et al. (2016)</td>
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<td></td>
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<td>SVAR Blanchard &amp; Perotti (2002)</td>
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</tr>
<tr>
<td>Country</td>
<td>Authors</td>
<td>Time period</td>
<td>Methodology and identification method</td>
<td>Short term government consumption multiplier</td>
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<td>2000Q1–2012Q4</td>
<td>Recursive VAR model</td>
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Source: the authors’ elaboration.
Abstract

The article presents the conceptualisation of one of the aspects of the strategic dimension of innovation: the choice of the method (strategy) of innovation activities carried out by enterprises. Two types of strategic decisions are discussed: the strategy of developing innovation and the decision of an already innovative enterprise choosing the way of further development of innovation activities. Original proposals of strategy models are presented against the background of innovation strategy models described in literature, and the method of their identification is illustrated using case studies of five Polish innovation enterprises.

Keywords: innovation strategies, innovation models, innovation management

JEL Codes: M10, M11, O3
1. Introduction

A strategic dimension of innovation can be understood in two ways: as an innovation strategy of an enterprise or as an innovation management strategy. The first meaning of a strategic dimension of innovation is in line with the Oslo Manual, which classifies it as an organisational type of innovation (Oslo Manual, 2005), implicating that the novelty element refers to an enterprise strategy. Strategic management literature provides many examples of innovation strategies, from Ansoff’s diversification strategy, the concept of strategic divergence, to the most famous blue ocean strategy. This aspect of the strategic dimension of innovation is not the subject of this article.

The second meaning of the strategic dimension of innovation presents it as a process of strategic innovation management in an enterprise, and this is the way of perception pursuant to which this aspect of innovation strategy will be developed in the article. Strategic decisions relating to innovation activities can be made in two different situations, or an enterprise’s life moments: when an enterprise which has not carried out any previous innovation considers undertaking such activities and chooses to take up a strategy of creating enterprise innovation, and when an enterprise already carrying out innovation activities chooses a way of further innovation development. Conditions and nature of choices in these two situations are totally different, as well as their reasons and choice opportunities. Similarly to the enterprise internationalisation theory, which distinguishes the concepts of entering foreign markets and the concepts of running international business, we can also consider innovation development strategies and innovation management strategies. The third element of innovation strategic dimension highlighted in the article is the relation between innovation management strategy and general strategy of an enterprise.

The aim of the article is to present the original concept of strategic innovation management taking into account a critical review of literature attainments and to present the author’s innovation strategy model verified for selected Polish enterprises.

The article uses the results of the statutory research carried out by the author in 2016 in cooperation with K. Melnarowicz (Romanowska 20161) on Polish innovation leaders. Five enterprises were selected for the detailed research from among several tens of Polish enterprises from the rating lists of the most innovative Polish enterprises.

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enterprises, and the major selection criterion was the availability of information on their strategies and innovation activities (see Table 1 in the Appendix).

Information on Qumak, Elektrobudowa, Rafako, Protektor and Asseco Poland companies will be used to illustrate model innovation strategies of enterprises.

2. Strategies of Developing Enterprise Innovation

The literature presents innovation models reflecting researchers’ views on determinants and conditions of innovation processes in enterprises and the course of these processes. British sociologist R. Rothwell has synthesized early research clarifying the innovation process, describing five models of innovation processes corresponding to changes of the global economic situation in the second half of the 19th century. (after Knosala et. al, 2014; Karbowski, 2015).

The first-generation model, the so-called supply model, was applicable up to the mid 1960s and resulted from a very receptive market of the post-war period. Expenses for research transformed into new products were immediately met by demand on the market. As the market was saturating, more and more innovations were not finding customers, which caused financial losses.

The second-generation model, the so-called demand model, functioning from mid 1960 until mid 1970, was better adapted to less dynamic markets. According to this model, the factor triggering innovation is the demand for new products and services, for which enterprises respond by investing in new technologies and products. The concentration of enterprises’ attention on quick adaptation to market needs made them avoid radical innovation, which in the long term resulted in losing their permanent competitive advantage.

The third-generation model, the so-called supply-demand chain model, was functioning from the mid 1970s to the mid 1980s and was not, unlike the two previous ones, a linear model where subsequent innovation phases always occur in the same order. This model took into account macroeconomic conditions – stagflation and a more turbulent economic environment, and it emphasised mutual adaptation of market needs and enterprise development pace, as well as decreasing development costs and integrating marketing activities with R&D.

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The fourth-generation model, the so-called cooperation model, functioning from the mid 1980s to the mid 1990s, was a response to the accelerated social and economic changes and higher demand for capital. This model took into account the broad context of a macroeconomic environment and business environment, as well as the significance of networks and alliances of enterprises in their innovation activities.

The fifth-generation model, the so-called network model, is a developed version of the cooperation model and it accentuates integration with external partners resulting in a high level of organisational and technological integration of partners performing innovation activities. Close cooperation of network participants in the innovation process is the implementation of the open innovation concept. Modern innovation models are usually a creative development of the fifth-generation model, as they develop the social dimension of the innovation creation process. These include the social corporate innovation model described by R.M. Kanter (Kanter, 2006⁴), applied in the public sector as a form of a public-private partnership and the open innovation model. The open innovation model developed by H. Chesbrough (Chesbrough, 2003⁵) implies that enterprises exchange new ideas and solutions, share knowledge and thus stimulate innovation development. The development of innovation clusters confirms that all the participants of an innovation process can benefit. Developed network models are often called the sixth or seventh generation models.

The presented models show the evolution of macro-conditions of enterprise development, highlighting development challenges and incentives to undertake innovation activities occurring in subsequent decades, but they do not explain the reasons for the decisions concerning innovation activities made by particular enterprises and differences in the ways of starting and developing innovation activities. However, if we look for an answer to the question why enterprises of the same country and of the same industry respond differently to challenges and incentives of the macroeconomic system, these models will not give us the answer.

It is interesting that even in highly developed countries creating incentives to introduce innovation, only some enterprises choose to undertake innovation activities and only some of them make innovation their strategic goal and permanent development leverage. The latest Polish Central Statistical Office survey proves that in 2013–2015 only 19% of industrial enterprises and 10.6% of service providing enterprises carry

out innovation activities (*Działalność, 2016*). Why do only few enterprises choose development by innovation?

To find the answer to this important question, research should go down to the level of an enterprise and it should analyse ways of forming enterprises’ decisions concerning undertaking innovation activities, their reasons and determinants. In certain moments of life of an enterprise managers of most companies make a decision to undertake innovation activities or carry on previous development strategies. Such a decision is preceded by an effectiveness analysis of the strategy applied so far, the usefulness of resources under the new strategy and costs of acquiring necessary resources and expected advantages of innovation introduction. As a result of such an analysis, some enterprises choose to start innovation activities if they consider that they have sufficient resources and can expect satisfactory benefits from innovation. These enterprises are the subject of the studies presented herein. The analysis of the reasons and determinants of decisions on starting innovation activities allows identifying three various models of innovation development strategies.

Model I. The strategy of regular innovation development: it is chosen by enterprises which, after years of accumulation of resources and out-dating the development pattern applied so far, encouraged by economic advantages or forced by competition requirements, choose to undertake innovation activities. As a result of investing in innovation and adapting to the new agenda, this strategy may lead an enterprise to a high level of innovation maturity, i.e. high activity in all the innovation fields. Enterprises applying the strategy of gradual undertaking innovation activities can be called “innovation builders”.

Model II. The strategy of quick innovation development: it is typical for enterprises which start innovation activities immediately or shortly after establishing their business and consolidate them as time goes by. These enterprises can be called “born innovators”, similarly to those “born global”, or enterprises which, operating in globalized industries, choose to enter global competition from the very start of their business. This strategy is often applied by enterprises undertaking activities in high-tech industries, which enter the market with their original product or modern technology, but also by companies from low-tech sectors, which start a business with an innovative idea of operating on the market, e.g. an original business model.

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7 The author used a parallel with the enterprise internationalisation strategy, where models of stage internationalisation and models of quick internationalisation, so called “born global” are distinguished. (see M. Jarosiński, *Procesy i modele internacjonalizacji polskich przedsiębiorstw*, OW SGH, Warszawa 2013.).
Model III. **The strategy of temporary innovation initiatives** is typical for enterprises which take advantage of an opportunity to establish or buy a start-up or to implement innovation using money from grants or EU projects, but do not continue innovation activities on their own after the project is over. Such enterprises can be called “occasional innovators”. They perceive innovation projects as a source of temporary benefits, they do not introduce permanent changes necessary to develop permanent innovation and do not include these actions in their company strategy.

Depending on the advancement rate of innovation, enterprises can be placed on the beginning of this way as “innovation beginners” or have considerable achievements as “advanced innovators”. “Innovation beginners” can be found among enterprises implementing each of these strategies, but “advanced innovators” are only those enterprises which successfully implement strategies of regular innovation development and quick innovation development.

Elektrobudowa S.A., Qumak S.A. Rafako S.A. and Protektor S.A. are examples of the strategy of regular innovation development, while Asseco Poland S.A. is an example of the strategy of quick innovation development.

**Elektrobudowa S.A.** is the parent company of a holding comprising 2 national companies and 3 foreign ones. This enterprise was established in 1953 and since the beginning, it has specialised in electrical power production and services dedicated mainly to the building industry, as well as power, oil and mining industries. Since 1996 it has been listed on the Warsaw Stock Exchange. The company development strategy assumes development by introducing its products and services on new markets and introducing new products on the markets on which it has been present so far. Innovative products from the electro-technical production segment, especially those from the automation technology field, which is new for the company, are the carrier of the company development. Modern products raise the quality of construction and erection works. The second direction of innovation activities is acquiring international quality certificates enabling the provision of services to demanding clients. Greater activity in developing new products and services, as well as the certification was related to the decision to start international expansion. The company’s internationalisation commenced in 2007 and 2 high-tech companies were simultaneously purchased; modern automation production had previously been initiated, which was a trigger to intensify innovation activities. The holding’s strategy of starting innovation activities can be described as the “innovation builder” model: the company has gone a long way from low-tech construction and erection works to innovation solutions for production and services.

**Qumak S.A.** is a Polish IT company designing and implementing ICT solutions for the private and public sector. It is an integrator operating on the Polish ICT market:
in the industry reports it occupies leading positions in the area of integration, it is a partner of world technology leaders, whose solutions it integrates, and on their basis it develops their own ones, adapted to the needs of the Polish market. Qumak originates from the Secom company selling computers and maintenance services. As a result of an agreement with the Polish-American Enterprise Fund at the turn of 1990 and 1991, Qumak International Sp. z o.o. joint venture was established. In 1998 Sekom S.A. in agreement with Qumak International Sp. z o.o. set up Sekom Group and both of these entities were merged in 2002. The newly founded company was named Qumak-Sekom S.A. and started running its business. In 2006 it made its début on the Warsaw Stock Exchange. Since 2013 the company has been running its business as Qumak S.A. and managing a holding comprising 3 companies. After entering the WSE, it broadened its activities in the area of developing its own innovation solutions. In 2012 an R&D Department was created and the importance of innovation activities raised. Only in 2015, several years after being established, did it occur on the list of most innovative Polish companies. Now the innovation level and the range of its own innovative products is large enough for the company operating so far on the Polish market to plan competition on highly developed markets.

The Rafako S.A. company was founded in 1949, since the very beginning it has been connected to the power industry, for which it has been designing and producing boilers and environment protection equipment. Since 1994 it has been listed on the WSE. It is the parent company of a holding comprising 7 subsidiaries, 2 of which are located abroad. The company is an unquestioned leader of the power equipment market in Poland. Rafako S.A. was for the first time included in the list of most innovative Polish companies in 2007. The process of innovation development started in 1990, which was several tens of years after the company was established. The innovation process has been regularly developed, a high innovation level of products has become the core competitive advantage of the enterprise and made it possible to enter foreign markets and maintain a large volume of sales. Rafako's long-term investment strategy emphasises especially innovative ideas and creating new solutions, which is also reflected in the company's mission. Among the 4 strategic goals of the new 2016–2018 strategy “enhancing R&D” is in the first position. The instruments for reaching this goal are as follows: creating a dedicated structure for R&D, commencing and continuing strategic R&D programmes.

Protektor S.A. is currently one of the biggest European producers and distributors of high safety class protective, military and special footwear. The company was founded in 1944, since 1998 it has been listed on the WSE. Currently the three-tier holding includes Polish and foreign companies. Protektor is a strongly internationalised
enterprise, mainly due to the acquired German companies which produce and sell their products on the German market. Only 13.8% of the holding’s sales income comes from the sales in Poland. The reason for developing innovation for Protektor was entering the very demanding sector of special footwear and the will to carry out international activities. Aspirations related to the company’s innovation activities were enhanced by the acquisition in 2007 of the majority, and in 2009 of all the shares of the German companies, which were more technologically advanced and had footwear brands distinguished in Europe.

Asseco Poland S.A. is the only example of the strategy of quick innovation development in our group of innovation leaders under research. Asseco Poland is a leader of the IT market in Poland with the market capitalisation over PLN 4.7 billion. Today’s Asseco Poland is a result of joining Asseco Poland (earlier COMP Rzeszów), Softbank, Prokom Software and ABG. Asseco Poland has been carrying out its business under this name since 2005, and since the very beginning it has been preparing its own programmes dedicated at first to Polish companies, and then to foreign enterprises and institutions. Purchasing foreign companies with their innovation base and products made it possible for Asseco Group to internationalise quickly and consolidate its position of a leading software and IT systems producer in Poland. For Asseco, the reason for choosing the “born innovator” strategy was the fact that since the beginning the company has been operating in the IT sector, considered to be a high-tech industry, where without own innovative solutions any entity could only be a software reseller. The company president, Mr Góral, said in an interview for the “Forbes” magazine: “Considering the way Asseco operates currently, I dare to say that we are the largest technology start-up in Poland.”

Rating lists of innovation leaders can include enterprises implementing the strategy of temporary innovation initiatives, but they are difficult to identify without a detailed study. These can be enterprises included in the innovation leaders list because of periodically high technology and product investments, carried out independently or by purchasing licences from foreign companies, often financed by funds from EU programmes. However, after completing these projects, “occasional innovators” have not built their own R&D base and have not undertaken other innovation projects.

The “occasional innovators” group definitely also covers a considerable part of start-ups created as part of programmes for innovation support, as well as enterprises which join the network of entities implementing the EU innovation project supported by government funds. After completing projects and consuming their part of funds they do not undertake their own innovation initiatives and do not become mature innovators. This fact is confirmed by the study on network organisations and start-ups
in Poland (see *Innowacyjność*, 2015). The issue of frequency of implementing various innovation strategy models depending on industry, company size and its strategy requires broader research. Here the author would only like to highlight the reason for such research and propose a model useful for the identification of a strategy.

### 3. Innovation Management Strategies

Strategic innovation management is practised in enterprises which made a decision to use innovation in the company development and have already worked out some innovation potential. Continuing this development path requires drawing up a strategy covering innovation investment volume, a way of acquiring and managing resources necessary to create innovations, choosing activity areas (industries, products, markets) in which innovations are to be implemented, choosing basic and auxiliary links of the value chain at which innovation activity will be targeted, specifying the scope and forms of collaboration with the environment in the process of innovation activities, as well as the methods of using innovation for creating their competitive advantage and enterprise development. The observation of the competitors’ actions and effects of their innovation strategy, as well as the evaluation of one’s own achievements and restrictions from the time of initiating innovation activities is the basis for undertaking such decisions. The enterprise's mission and strategic targets should be a reference point for drawing up innovation management strategies.

J. Kalinowski, an expert at KPMG in Poland, defines an innovation strategy in the following way: “An innovation strategy answers to the question on what business goals an enterprise wants to reach by innovation. The strategy also specifies financial resources dedicated to acquisition, development and implementation of innovation. Identification of the kind of innovation that is sought for is also an important element of the strategy” (Kalinowski, 2016). J. Kalinowski defines various kinds of models which are part of an innovation strategy. These are models specifying the way of innovation acquisition, ways of collaboration with external partners, innovation financing models and innovation development instruments (project selection mechanisms, the system of innovators acquisition and development, business processes and innovation project supervision procedures, the innovation processes control system,  

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J-P. Deschamps defines innovation strategy by four questions which indicate most important features of a strategy (Deschamps, 2014, p. 159 and further):

1) What is the aim of the planned innovation, what does an enterprise want to achieve by innovation?
2) What should be the scope and subject of innovation, or what kind of innovation should it refer to (technological, product-related, marketing-related, organisational) and what part of enterprise should it cover?
3) What should be the innovation intensity in terms of depth and costs of changes?
4) What should be innovation limits: will an enterprise choose the path of innovation development based on the company’s internal resources or will it rather collaborate with the environment and acquire external resources?

By combining various answers to these basic questions Deschamps drew up four different models of innovation strategy, which he called “blades” or “scenarios” of innovation (Deschamps, 2014, p. 160):

Model 1. The introduction of a new, improved product, process or service, aimed at enhancing present activities with internal work of an organisation;
Model 2. The introduction of a totally new category of products or services to create a brand new business undertaking by radical innovation activities inside the organisation;
Model 3. Collaboration with external partners in creating a totally new business model or system by radical innovation;
Model 4. Collaboration with external partners in creating a new or improved system solution aimed at enhancing present activities on an increment basis.

Another example of a multidimensional model are model strategies of R.E. Miles and C.C. Snow (after: Zarządzanie, 2016, pp. 16–17), where strategy differentiation factors are as follows: the investment level, rate of changes novelty, rate of activity and speed of response to environmental challenges. They distinguish the following innovation strategy models:

1) **Prospector strategy**, by which an enterprise aspires to take the position of a leading innovator and benefit from a pioneer position. Companies applying this strategy are very active, they shape new trends, aggressively force out competitors from the market, but incur large costs of investments connected with a high risk.

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2) **Defender strategy** – typical for companies aspiring to maintain their position on the present market based on their key competences. It corresponds to Ansoff’s penetration strategy.

3) **Analyser strategy** combines the Defender and the Prospector strategies: an enterprise applies simultaneously, depending on the sector of business, the strategy of aggressive investment in its own solutions and imitation in other sectors, consolidating at the same time its position in all the sectors and taking a smaller risk.

4) **Reactor strategy** of passive reaction to environment changes and delaying the introduction of innovation.

Both classifications of innovation strategy models presented above prove considerable pointlessness of drawing multidimensional models, since taking several strategy parameters simultaneously makes the models opaque and consequently they do not include all the possible combinations of strategy features and thus are not very useful for diagnosing the real innovation strategy in empirical research.

Most innovation strategy models known in the literature combine two parameters describing innovation activities of an enterprise or combine a selected parameter describing innovation activities with a chosen environment feature, e.g. the rate of industry or region innovation, phase of life cycle of a sector or its rate of internationalisation.¹³

An example of a model showing diversity of two internal innovation parameters of an enterprise is the model developed by J.-P. Deschamps¹⁴, who considers it to be most important to distinguish two different patterns of generating and developing innovation: top-down innovation initiated by the management with process changes, and bottom-up innovation, initiated by creativity and entrepreneurship of employees and stimulated by pro-innovative culture. Deschamps distinguishes four innovation strategy models depending on the quality of innovation culture and quality of innovation processes, understood as the power of support for innovation activities (Deschamps, 2014, p. 159 and further¹⁵):

1) **World class** – companies combining the high quality of culture with the high quality of innovation processes;

2) **The ambitious ones chasing the peloton** – companies with innovation processes of high quality, not accompanied by the high quality of innovation culture;

3) **Natural innovators** – the high quality of innovation culture but the low quality of innovation processes;

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¹³ An innovation profile is a list of features describing the innovation level and way of innovation management in a given enterprise, e.g. volume of expenses for R&D, existence of the R&D department, the level of innovation protection, its financing sources, etc.


¹⁵ Ibidem., p. 159 and further.
4) The fourth category covers companies with both parameters on a low level, which excludes them from competition.

Contemporary publications on innovation are characterised by irrelevance to the operational level of innovation creation and tendency to combine many projects and innovation processes into one strategic concept of enterprise innovation management. An example of such a way of thinking is a widely known process model of innovation management by K. Pavitt, J. Tidd and J. Bessant, forming a chain of actions subordinate to innovation strategy (Tidd et al., 201316). Subsequent stages of the process-based attitude to innovation management are as follows: searching an identification of innovation on the basis of enterprise environment analysis, selection and decision on the choice of innovation, implementing chosen innovations and benefiting from the implemented innovations.

An innovation management model developed by consulting company A.T. Kearney, called also the innovation pyramid is of similar nature (After: Zarządzanie, 2015, p.2617). Innovation in this model is a result of an enterprise’s effort directed at new products, processes, business models, and the value of innovation is verified on the market. Strategy is at the top of the pyramid, organisation and innovation culture, innovation life cycle management and factors conducive to innovation are at lower levels. Although the process-based innovation concept assumes the separation of the innovation management process from innovation strategy and subordinating the operational level of strategy innovation, the author believes that a researcher focusing on the strategic dimension of innovation should rather avoid the process-based approach and use in his or her studies strategy models showing various possibilities of choice of nature and method of innovation development.

The usefulness of these simple two-dimension models for diagnosing innovation strategies is demonstrated by a model including two dimensions defining the method of developing innovation by an enterprise: the main source of acquired resources (internal or external) and the rate of enterprise partners’ involvement in innovation creation (insignificant or significant). Descriptions of the five enterprises from the Rzeczpospolita’s most innovative companies list are used to illustrate these models.

There are our model innovation strategies in Figure 1 (see the Appendix): “autistic innovator”, “cooperating innovator”, “network innovator” and “innovation buyer”.

“Autistic innovator” is an enterprise which builds its innovation mainly by using its own resources, e.g. creative makers, its own inventions and ideas and financial

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resources, and does not involve other enterprises such as providers or buyers, it avoids entering networks, clusters and other forms of cooperation which would make them share knowledge and use of innovation. A considerable part of Polish start-ups belongs to this category. The reason for applying this strategy can be the difficult access to financial resources or knowledge, but also the will to sell the company or its patented solutions subject to an exclusive right of ownership.

“Cooperating innovator” is a strategy typical for larger enterprises which pay considerable attention to their ownership right to an innovation and its protection, but do not want to carry out activities on a broad scale and have to cooperate with their environment: scientific and research entities, providers, banks and funds financing innovation activities. By placing their key elements in their structures, however, and developing their own R&D divisions, employing their own staff and financing innovation to a large extent from their own funds and loans, they keep control over the innovation process and innovation commercialisation. The reason for the choice of such a strategy can also be an insufficient volume of resources and the will to learn from partners’ achievements or copy their solutions.

“Network innovator” is an enterprise which prefers the synergy effect of cooperation related to innovation solutions over short-term benefits of their innovation protection. These benefits include the great scope of investments and the opportunities of breakthrough inventions, access to the partners’ knowledge, raising international competitiveness of the enterprise’s sector and market. Enterprises often implement this strategy operating in clusters and consortia.

“Innovation buyer” is an enterprise which purchases innovations either in the form of complete patents and solutions for R&D entities and other enterprises, or acquires, makes alliances or merges with enterprises that have valuable resources and ready innovations. An enterprise implementing this strategy must have considerable financial resources available, but it also has considerable control over innovations and it can benefit from them in a way similar to the “autistic innovator”. The reason for using this strategy is the will to develop innovation activities quickly, impossible to achieve by internal development because of a lack of key competences necessary to reach success in demanding sectors.

When studying a specific enterprise, it can be classified in one of four model strategies, but more probably enterprises would be found in between various models. It is also possible that an enterprise would change its strategy in various periods of its business, e.g. it would move from the “cooperating innovator” to “innovation buyer” category as its business size grows. An enterprise can also differentiate innovation strategies in various domains of its business, e.g. in its core domain it would apply the “autistic innovator” strategy, while in other fields it would apply the “innovation
buyer” strategy. It often happens in pharmacy companies or conglomerates, which focus their research on their key groups of drugs, while buying others along with companies that have licenses. The classification of five selected innovation leaders to specific strategy models is presented below.

Elektrobudowa SA implements the “autistic innovator” strategy. It has a large own R&D division, considerable proportion of R&D employees and large expenses, which were, however, different in the subsequent years for R&D. The company has innovation products developed by their own R&D base and implemented into production, e.g. the high voltage gas insulated switchgear. Most innovation activities concern new and improved products and services, but in recent years the management has also introduced innovations concerning strategy, marketing and organisational processes. In general, the company development is based on two types of its own key resources: financial capital and human capital, which enables both the development of internal innovation and purchasing of innovation entities or licenses. The company’s method of innovation activities is considerably autonomous: it does not cooperate with any entity in creating innovation, and the expenses are covered fully by the company’s own funds. It is not part of any cluster or network. High-tech companies have been bought only incidentally. The growing foreign expansion and experience on the acquisitions market may forecast combining the “autistic innovator” with the “innovation buyer” strategy.

Qumak S.A. implements the “cooperating innovator” strategy. The company develops its technology innovations independently in its own R&D division, the rate of employees working in R&D is 3%, it also allocates considerable funds for research, but it tries to broaden its competences by collaboration with scientific entities. Collaboration with scientific entities is a consequence of several orders Qumak has performed for universities and scientific centres: it is the leader of services for education and science and research sectors and is considered a solid business partner. Because of the continuous contact with these entities, Qumak can consult its ideas with scientists, it collaborates with many universities, such as Military Technical Academy (WAT, Wojskowa Akademia Techniczna). Generally, Qumak finances its innovation projects on its own, but occasionally it takes advantage of the possibility of financing projects from the state funds or EU programmes in collaboration with Polish universities, e.g. currently it receives financing from the Ministry of Finance and Higher Education as part of the “Horizon 2020” programme. As part of the work in the National Centre for Research and Development, in collaboration with the Railway Institute and WAT, the company carries out a project under the brand Qumak – locomotive simulator for training engine drivers. The R&D division carries out broad market research, and also specialises in drawing up innovation projects and acquiring
money from external entities. Qumak also collaborates with ICT companies, it acts as an innovation incubator for the companies with a high development potential it selects, the companies which produce modern instruments and would cooperate with Qumak. By using its contacts and experience, it helps young companies to enter the market, ensures access to the newest technologies and provides financial support for the projects for which it has the priority of access to the new growing technologies. Because of the nature of the products and services intended for specific clients, the company also uses its clients’ knowledge and inspirations to implement new ideas. Qumak’s way of development is currently organic development: designing its own innovation products and offering them to present and new clients; acquisitions of other entities were practised several times during the holding creation in order to broaden its offer. The President announces that the company’s entering foreign markets will be made by internal development, acquisitions will be considered later. It cannot be excluded that as the company becomes more international, it will use more external resources than now, so the “innovation buyer” will join the “cooperating innovator” strategy in reference to selected market segments.

Rafako S.A. combines the “cooperating innovator” strategy with the “autistic innovator” strategy. It spends a lot of funds on its own research and development, it also has several own design bureaus located in Poland and abroad. Rafako’s products are protected by patents both in Poland and abroad. R&D expenses are covered by the company’s own resources, budget grants and EU programmes. The funding is acquired by active participation both in national programmes managed by the National Centre for Research and Development and EU projects. As part of its R&D activities, Rafako closely collaborates with numerous scientific entities, such as the Wroclaw University of Science and Technology, Silesian University of Technology, Stanislaw Staszic AGH University of Science and Technology in Krakow, Institute of Fluid-Flow Machinery of the Polish Academy of Sciences in Gdansk. Projects carried out by Rafako are focused on several themes, such as the development of boiler technologies and environment protection installations, including the desulfurization and denitrification of flue gases, modernisation of dust suction plants. Currently, the company carries out a project named “Innovative System of Flue Gases Treatment from the Ship Diesel Engines Based on Innovative Emission Control Methods” in collaboration with the National Centre for Research and Development as part of the 7th Framework Programme. Rafako’s innovation strategy is based on its own strategic resources, mainly its own technological solutions and licences, its own staff and production equipment, but also on good collaboration with scientific centres and other entities. Rafako has a complete engineering base enabling innovation projects such as a design and construction bureau or production plant, where new solutions
can be tested. Irrespective of process- and product-related innovation, Rafako has introduced innovation in internal processes and business strategies and models. In Rafako’s new strategy the significance of business partners in winning new markets and new competence is highlighted, as well as building stable strategic alliances. Further development of an internal R&D structure, however, is also foretast. Currently, the scope of cooperation is smaller than for Qumak and covers only “safe” partners, such as universities and R&D entities.

**Protektor S.A.** implements the “autistic innovator” strategy. Protektor was for the first time included in the list of innovative companies in 2015, due to its high expenses for R&D, having its own R&D division and considerable employment in R&D. Expenses for R&D were covered from the company’s own resources, some innovation projects were carried out in collaboration with research institutes. The basis for developing innovative solutions in the area of technology and products in Protektor is the many years’ experience on the footwear market, numerous certificates for specific models and groups of footwear and certificates confirming quality management systems, as well as good relations with regular clients. The company’s priority is high protection of its own resources and innovation. It finances innovation from its own resources so new product templates and technologies are created within the holding. In spite of some acquisitions and collaboration with scientific entities, the company’s priority is strong protection of innovation, which makes it possible for the company to compete on the very competitive market in Poland and abroad due to the unique quality of footwear.

**Asseco Poland S.A.** is a company whose main product is innovation. It implements two strategies simultaneously, depending on the project and the market: the “cooperating innovator” strategy and the “innovation buyer” strategy. Each year the company spends enormous money (13.45% of its income) on R&D work carried out by the managing company. The majority of the employees of the company work on developing innovation initiatives (79.82% of its employees). A large volume of spending and large R&D divisions in foreign companies of the holding should also be taken into account, as well as expenses for purchases of innovation companies, a large innovation centre, software licences, numerous products without national equivalents. Asseco Poland S.A. founds its business on knowledge and innovation technologies, as well as extensive experience in the IT industry. The offered solutions are also developed using structural funds and state budget funds allocated for education. Asseco Poland S.A. also participates in R&D projects carried out in collaboration with university R&D units and other organisations supporting the development of Polish science. As a result of the common implementation of projects, Asseco Poland S.A. pro-actively participates in the share of knowledge and experience between the
IT industry and science and higher education sectors. The company builds many years’ relations based on trust with the clients, and becomes their strategic partner. Asseco uses the best experience of the international holding companies to prepare a comprehensive offer, meeting the requirements of thousands of its clients. Asseco’s innovation strategy is based on two pillars. The first one is organic development based on the company’s own software and services, while the second one is development by acquisitions. Asseco takes over companies which enable it to improve competitive advantages in a given sector, but also those which enable entering new geographical markets. Recently Asseco has started to acquire innovations from outside by taking over start-ups, small technology companies in order to acquire their products or skilled IT staff, which is also an innovative management move. The many years’ successful acquisition policy places Asseco Poland in the group of the most experienced companies in this area in Poland. Asseco is a good example to observe the evolution and combination of various strategy models applied depending on the project and market. Starting from the “cooperating innovator”, the company moves, as it gathers experience and financial resources, to the “innovation buyer”.

4. Conclusion

Research and studies on innovation in enterprises have been carried out for many years in Poland and all over the world, but so far they have not made it possible either to understand fully the phenomenon of innovation, or to construct an empirically confirmed list of determinants, mechanisms and effects of enterprises’ innovation activities. One of the reasons is the lack of common theoretical and methodological basis of research projects, and often also skipping the strategic dimension of innovation in research, especially the relation between an enterprise’s innovation activities and its competitiveness, as well the enterprise’s history and development. The lack of good theoretical models hampers the formulation of hypotheses concerning innovation strategies of enterprises, factors differentiating these strategies, organisational and economic effects of the implementation of various innovation strategy models. The examples of innovation strategies placed in the context of their business history and conditions presented in this article show the complexity of these issues on the one hand and the usefulness of simple innovation strategy models for diagnosing enterprises’ innovation behaviours on the other hand.

It seems that the research focused on the strategic dimension of innovation would make it possible to answer many key theoretical and practical questions concerning the reasons and conditions of enterprises’ decisions to start innovation activities,
reasons for diversified intensity and methods of these activities, as well as relations between innovation activities and the success of enterprises, industries and regions.

**Bibliography**


Appendix

Table 1. Position of companies covered by research for innovation ratings of the Rzeczpospolita newspaper published between 2007 and 2015

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<tbody>
<tr>
<td>Qumak SA</td>
<td>32</td>
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<td>13</td>
<td>-</td>
<td>44</td>
<td>56</td>
<td>-</td>
<td>52</td>
<td>-</td>
<td>44</td>
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<td>-</td>
<td>15</td>
<td>-</td>
<td>-</td>
<td>47</td>
<td>43</td>
<td>-</td>
<td>20</td>
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<tr>
<td>Protektor SA</td>
<td>35</td>
<td>-</td>
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<tr>
<td>Asseco SA</td>
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<td>6</td>
<td>5</td>
<td>4</td>
<td>59</td>
<td>46</td>
<td>27</td>
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</table>

Source: the author’s own study of the Rzeczpospolita newspaper ratings\(^{18}\).

Figure 1. Models of innovation strategy

<table>
<thead>
<tr>
<th>Main source of resources</th>
<th>External</th>
<th>Internal</th>
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<tbody>
<tr>
<td></td>
<td>Buyer of innovation</td>
<td>Autistic innovator</td>
</tr>
<tr>
<td></td>
<td>Network innovator</td>
<td>Cooperating innovator</td>
</tr>
</tbody>
</table>

Source: the author’s own study.

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\(^{18}\) Results of a questionnaire sent annually to enterprises by the Rzeczpospolita are the basis of the ratings. In their answers to the questionnaires, enterprises give information concerning the volume and nature of R&D expenses, number of employees of this field of activities, having a separate R&D unit and other issues.
Executive Compensation: Its Structure, Links to Company Performance, Executives’ Perception, and International Differences

Abstract

Despite the vast amount of academic research on particular aspects of executive compensation, few studies have undertaken the subject comprehensively, combining the perspective of a firm and a manager in the international context. This study is a review of contemporary executive compensation schemes including its structure and links to company performance. Based on the literature of the topic, the latest market studies and industry expert interviews, this paper determines the role and effectiveness of particular components of compensation packages, taking into consideration executives’ perception, motivation, and the existing behavioral biases. Additionally, the study analyses the major differences in executive compensation policies of the listed companies in the US, the UK, Australia, Poland, and Norway. The research conclusions prove that executive compensation maximizing benefits for a firm should not only address the principal-agent problem through properly designed incentives, but also reduce a manager’s propensity to excessive risk-taking. Finally, it provides practical recommendations for compensation committees how to effectively design remuneration policies.

Keywords: executive compensation, motivation, firm performance, international comparison

JEL Codes: M12, M16, M52
Introduction

The topic of executive compensation raises a very interesting issue of how sources of individual motivation are translated into a firm’s strategy and performance. Most of the academic studies in this matter arise from an interest in the principal-agent problem and its implications for companies1.

The key conclusion from the agency theory with regard to managerial pay says: “In order to align the interests of principals and their agents, boards of directors, acting on behalf of shareholders, create incentive contracts which reward executives financially if shareholders’ returns increase, but not otherwise.” 2

The agency theory, which has dominated academic thinking about executive compensation, has been a key point of the economic theory of the firm since the 1970s. The theory tends to prioritize the structure of the reward rather than its level as a source of motivation for top managers. Practically, it states that the way how a compensation package is formulated matters more than its total value.

As a result of the common approval for the agency theory, nowadays the most widely-used managerial compensation schemes try to link pay to business performance through bonuses, equity instruments and long-term incentive plans. Moreover, the theory postulates an introduction of external control systems (such as dismissal in case of poor performance, risk of a hostile takeover, affiliations, etc.). An active control of the top management actions performed by company shareholders is the process known as corporate governance.

Management compensation, and the problems of corporate governance related to it, have been widely discussed by the media and political or regulatory institutions for a long time, which was already highlighted by M.C. Jensen and J.L. Zimmerman3 (1985). Other current debates about executive pay have been focused on a question if the current level of executive compensation is acceptable to the society and whether remuneration committees do their job properly4.

However, until recently, rather little attention has been paid to executives themselves. One might observe the growing number of behavioral studies looking into the matter from managers’ point of view based on psychological research and

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surveys. A. Pepper⁵ proves that the utility of the standard agency theory in the real life is limited because of its unrealistic assumptions. Those include the claims “that firms are profit seeking, that agents are both rational and rent seeking and that there is no non-pecuniary agent motivation. An agent’s utility and performance is assumed to be positively contingent on pecuniary incentives and negatively contingent on effort.”

The purpose of this paper is to review contemporary methods of executive compensation including its structure and links to company performance.⁶ The article aims to recognize the role of particular components of managerial compensation packages and determine their effectiveness, taking into consideration executives’ perception and existing behavioral biases.

The practical goal of this work is to provide guidelines on the design of an executive pay maximizing benefits for a firm in various contexts (i.a. geography, business culture). This includes identification of the effectiveness criteria for a compensation package and observations with regard to key sources of motivation for executives. Additionally, the study aims to answer the practical question how to properly select and design the determinants of the variable compensation (KPI).

This study brings contribution to the current research by providing further insights with regard to discrepancies observed in the two above-mentioned approaches (a company’s and a manager’s perspective). Moreover, it brings a new perspective through the usage of the most recent market data from different countries and information obtained through direct interviews from executive search professionals.

**Methodology**

This study is mainly based on secondary research. It compiles hitherto academic research with recent market data (available disclosures included in companies’ annual reports and market analyses).

Additionally, the paper is supplemented by several singular case studies (based on available disclosures and interviews with executive search experts) illustrating the subject of managerial compensation in different contexts.

The research scope is primarily focused on senior-level executives such as Chief Executive Officer (CEO) and management board members since they have the largest impact on a company’s strategy and its execution.

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⁵ A. Pepper, *The Economic Psychology...* op.cit.
⁶ Note: This article is not focused at benchmarking compensation levels or examining differences in managerial pay in relation to industry or company size. Moreover, it does not cover the topic of executive compensation as a tool for corporate tax planning.
Executive Compensation and Company Performance

It appears to be intuitive that attaching rewards to high performance should motivate managers. However, although merit pay and managerial bonuses have been popular forms of management compensation already for a long time, there have been no rigorous tests of their effectiveness until 1980s.

The deeper interest in relation between management compensation and company performance appeared in the studies conducted by K. J. Murphy, A. T. Coughlan and A. M. Schmidt, and G. J. Benston. They provided sound evidence confirming that the level of management compensation and company performance are correlated. However, the direction of causality was not fully explained.

Further research focused on indicating whether the change in company performance is caused by the change in executive remuneration (not vice-versa), treating the pay specifically as an incentive. Later studies, including the article by S. R. Cole, examined the issue from the company owner’s perspective, emphasizing the impact of compensation schemes on shareholders' return. This approach looks for a reward design which shall maximize managers' performance and reduce principal-agent problems.

Since direct control of senior management efforts and performance very often turns out to be either very costly or infeasible, the agency theory suggests the usage of incentive contracts where remuneration is linked directly to company results.

In practice, a manager’s personal wealth is tied to the company’s results by various types of bonuses, share ownership, and different forms of long term incentive plans (LTIPs) including stock option plans and other equity-based financial

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instruments. However, not all of the above-mentioned instruments are equally effective in creating a beneficial pay-performance link. That is why, the sensitivity of top-management compensation to company performance has been studied in-depth for the last two decades.

Methodologically, K. J. Murphy\textsuperscript{14} proposed the measurement of the link between pay and performance by the following indicators:

- \textit{pay-performance sensitivity} – showing the absolute incremental increase in a manager’s pay associated with a USD 1000 increase in shareholder value;
- \textit{pay-performance elasticity} – showing the percentage change in a manager’s pay associated with a 1% increase in shareholder value.

Shareholder value can be reflected both by accounting measures (e.g. profit, revenue, return on equity, return on assets) or market indicators (e.g. total shareholder return, Tobin’s Q ratio).

Empirical studies conducted in the 1990s were mostly focused on the sensitivity of the cash remuneration (i.e. fixed compensation and annual bonuses). In general, typical estimates for that time suggested that firms increase CEO pay by 1–1.5% for every 10% increase in shareholder value, which was a relatively low reward for an exceptional financial performance of the company\textsuperscript{15}.

However, cash pay sensitivity, as a measurement of incentive effectiveness, have a limited usability, as they might ignore all the components of the compensation package that are based on the equity valuation. M. C. Jensen and K. J. Murphy\textsuperscript{16} proved that the crucial part of the pay-performance link that affected executive decisions was not caused by annual bonuses but equity-based remuneration instruments (holdings of firms’ stocks and stock options).

B. J. Hall and J. B. Liebman\textsuperscript{17} using a sample of almost 500 large American firms, further confirmed the essential role of equity-based components and emphasized the high impact of the option grants on the performance pay. According to their research, the total CEO compensation package (including equity based incentives), on average, would increase by 39 percent if the shareholders’ return goes up by 10 percent.

The evolution of research works on executive compensation (from 1980 to 2000) is summarized in \textit{Exhibit 1} below. The analysis ends in 2000 as up to this year visible

\begin{thebibliography}{99}
\end{thebibliography}
dominant directions of research can be found. Further literature on the subject is significantly diversified and will be discussed later on.


There is a significant correlation between management compensation and firm performance  
• Murphy, 1985; Coughlan & Schmidt, 1985; Benston, 1985

Managerial compensation works as an incentive for company performance. (Causality link)  
• Baker et al., 1988

Majority of the pay-performance link is generated by equity-based instruments.  
• Jensen & Murphy, 1990

Link between management cash pay (salary & bonuses) and company performance is low or negligible.  
• Conyon & Gregg, 1994

Sensitivity of executive pay to firm performance rose significantly since 1980, mainly because of more common usage of stock option grants.  
• Hall & Liebman, 1998

Source: the authors’ own analysis based on the articles cited in the chart.

It shows that until 2000 variable components proved to work as an incentive for high-level managers. Moreover, it was found that among these instruments equity-based incentives were more effective than any type of cash bonuses. These research findings are used in the further parts of this paper to verify to what extent remuneration practices adopted on different markets are compliant with the identified patterns.

**Fundamentals of Executive Compensation Packages**

Based on the recent market studies conducted in different countries and industry expert interviews, one can firmly state that the most common formulation of an executive compensation package differs significantly from a typical employee’s
compensation scheme. Unlike a typical employee pay, an executive pay is usually contingent to some extent on a company’s performance. In general, it is structured by the company’s compensation committees with the intent to reward the manager for positive results of the firm and creation of the value for its shareholders\textsuperscript{18}.

Whilst some parts of executive compensation, such as salary and annual bonus, are long-established, equity-based remuneration has been developed in the last thirty years. Since its emergence, in many cases it has accounted for an extremely high share of the total executive pay, and had a substantial influence on the level of individual managers’ earnings. The adoption of the new type of executive rewards provoked much of the empirical investigation of managerial compensation. What is particularly striking with regard to equity-based pay popularization, is that in the period from 1945 to the mid-1980s there was a relative stability in terms of reward composition\textsuperscript{19}.

**Executive Compensation Structure**

Current executive compensation packages typically include seven distinct components, which can be found in Exhibit 2. In general, they can be divided into fixed and variable or performance-based parts. The majority of remuneration is paid in cash or financial instruments such as a company’s stocks or stock options. However, there are also instruments that reward executives through services, business equipment or retirement plans\textsuperscript{20}.

**Base salary.** The base salary is a fixed component of an executive pay. It is usually paid monthly or once every two weeks, similarly to remuneration of other salaried staff. Most frequently, this part of the pay is subject to personal income tax for the manager and can be deducted as an expense for the company taxation. That is why, in some cases, the level of this compensation component is precisely adjusted for the purpose of tax optimization. For example, in the US, “[…] since 1993, federal tax law limits the amount of cash compensation that companies can deduct as an expense for tax calculations to USD 1 million, unless the compensation is performance-based.”\textsuperscript{21}


\textsuperscript{19} A. Bruce, R. Skovoroda, *The empirical literature… op.cit.*


\textsuperscript{21} Ibidem
Because of this, inter alia, many large companies try to reduce the base salaries of their executives and provide the rest of the remuneration in the variable, performance-based form.

**Exhibit 2. Dominant components of executive compensation packages**

<table>
<thead>
<tr>
<th>Executive compensation package</th>
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<tbody>
<tr>
<td><strong>Fixed part</strong></td>
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<tr>
<td><strong>Variable part</strong> (Performance-based)</td>
</tr>
<tr>
<td><strong>Other</strong></td>
</tr>
<tr>
<td>Base salary</td>
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<tr>
<td>Short-term incentive</td>
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<tr>
<td>Long-term incentive</td>
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<tr>
<td>Benefits</td>
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<tr>
<td>Perks</td>
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<tr>
<td>Severance payments</td>
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<tr>
<td>Change-in-control payments</td>
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<tr>
<td>Cash bonus</td>
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<tr>
<td>Share bonus</td>
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<td>Executive options</td>
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<tr>
<td>Warrants</td>
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<td>Phantom shares</td>
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</table>


**Short-Term Incentive (STI).** This part of a manager’s remuneration usually includes a cash bonus (rarely a share bonus) paid annually or quarterly. The key role of this part is to align the executive’s priorities with the company’s short-term business targets. Typically, the annual bonus is expressed as a percentage of the manager’s base salary. The nature of such targets depends heavily on the type of the business, including its size, structure, industry, and multiple other factors.

**Long-Term Incentive (LTI).** Long-term incentives for executives are usually provided in the form of equity instruments. The purpose of this part of management pay is to encourage them to pursue the company’s strategic goal maximizing shareholder value over a long timeframe. This component attracts a lot of attention since it has its ultimate value in binding executives’ and shareholders’ interests, which has been already highlighted by M.C. Jensen K.J. Murphy. The most prevalent long-term incentive goals are focused on broader measures than short-term ones. These can include total return to shareholders, earnings per share and other return measures, such as return on assets. By definition, the long-term incentive typically depends

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22 M.C. Jensen, K.J. Murphy, *Performance Pay...* op.cit.
23 Center on Executive Compensation… op.cit.
on the performance within 3–5 year periods. A simple equity tool to achieve this is the issuance of executive options (call options) allowing the recipient to purchase the company’s share for a fixed price on a pre-set date in the future.

**Employee Benefits.** Employee benefit programmes for executives certainly include statutory benefits (familiar to other employees but usually larger in terms of value) such as social, medical and life insurance. Moreover, executives are often eligible to participate in special retirement plans. The money accumulated in these plans might be put at a higher company-specific risk, which should potentially lead to further integration between long-term interests of the executive and the company. However, based on direct interviews with executive search experts, non-wage benefits have rather limited value for executives as an incentive, thus their impact to influence company strategy and performance is negligible.

**Perquisites.** Executive perquisites (commonly called “perks”) include all the extra benefits that help the executive gain recognition within the company and externally. This part also covers special arrangements that need to be made to ensure an efficient working environment for executives. Some executive perks are specifically designed to maximize executive worktime. It may include convenient parking, drivers to and from work, the setup of home communication systems, personal finance services, and even the usage of company aircraft for personal travel. Although executive perks typically constitute a modest component of their total pay and they are not the most appropriate tool to influence strategy, according to executive recruitment experts, in some cultures their impact as an incentive turns out to be higher than expected.

**Severance Payments.** These contract arrangements provide payments to executives in case of termination of their job. They can play a constructive role in recruitment of new executives or retention of the current managers. Firstly, this compensation component allows mitigating the risks for incoming executives who decided to leave other employment opportunities. Secondly, for longer-serving executives, they can be oriented to protect the stability of their income, therefore maximize retention. Whereas these arrangements are highly appreciated by executives themselves, companies need to be careful with the usage of this tool to ensure that severance agreements do not become incentives for an early leave or taking excessive risks. It can be achieved through provisions such as “non-competition” or “good reason” provisions.

**Change-in-Control Payments.** Change-in-Control agreements, occasionally referred to as “golden parachutes,” protect executives from losing their job due to mergers, acquisitions or a company sale. It is a powerful remuneration component.

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that can encourage executives to look for and accept sale or merger offers when it is aligned with the interest of shareholders. It allows mitigating crucial barriers concerning losing executive positions.

Determinants of Performance-Based Compensation

Another frequently discussed topic regarding executive compensation is the ratio between fixed and variable pay. An optimal pay mix should provide appropriate incentives to improve business results, and at the same time prevent from excessive risk taking.

The agency theory clearly indicates the advantages of implementing performance-based compensation components for executives. However, an optimal pay mix can be only determined after having a clear understanding of what defines performance and how it should be measured. While it might sound simplistic, without such clarity, it is difficult to identify the kind of performance that should be rewarded. That is why the first stage of creating an effective executive remuneration strategy should be defining appropriate key performance indicators (KPI) that will indicate the level of short-term and long-term rewards.

In practice, possible KPIs can be divided into quantitative and qualitative measures. Quantitative performance measures may include specific targets with regard to a company’s revenue, market share, profit, cash flow, number of customers, reduction in costs etc. Qualitative factors are supposed to incentivize the attainment of some special tasks such as implementing a new corporate strategy, development of new products, expanding to a new market, or completion of a critical project25.

Short-term (annual) incentives frequently include a three-tier structure: “a threshold level, below which no award is earned, a target level, which is the executive’s normal expected performance, and a stretch component, meaning that the company would have to obtain extraordinary results for the maximum incentive to be paid.”26

Performance vesting KPIs (both qualitative and quantitative) can be also divided by the level of control that an executive has over it. It is widely accepted that KPIs whose realization is more directly contingent on a manager’s actions should generate stronger incentive mechanisms. However, companies often use also indirect KPIs such as a global revenue increase to be the factor affecting a regional director’s variable salary. It can successfully stimulate cooperation among company executives

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26 Center on Executive Compensation... op.cit.
responsible for different areas and integrate their objectives to work for the common interest of all the company’s shareholders.

Another criterion to be taken into consideration in the formulation of performance pay is the nature of underlying measures. For example, companies pursuing rapid expansion can attach higher weights to sales growth value while established firms in low-growth industries can make its executives’ compensation dependent on market share changes. This feature of the variable pay was studied in more detail by S. Balsam, G.D. Fernando and A. Tripathy\textsuperscript{27}. The authors of the article have distinguished two major strategies on the basis of the framework introduced by Michael Porter – i.e. cost leadership and differentiation. They make an assumption that strategy is exogenous and they do not indicate who determines company strategy: shareholders, the board of directors or executives. The key conclusion from their research states that “in determining executive compensation firms consider strategy. In particular firms pursuing a cost leadership strategy place a significantly higher weight on sales and firms which pursue a differentiation strategy place significantly lower weight on ROA.”\textsuperscript{28}

Finally, decision makers should take into account the quality of available performance measures. When it is low, the preferred impact of the factor on variable compensation should also be low, and vice versa. Therefore, the mix used for one executive of a specific company cannot be used by a different company based on benchmarking alone\textsuperscript{29}.

**Managers’ Perception of Value**

As mentioned in the introductory part, executive compensation cannot be well explained by a one-sided view from the company’s perspective, without analyzing the perception and preferences of executives themselves. It was already proved that executive compensation may affect firm performance and it was shown what compensation tools help mitigate the agency problem. However, it remains not fully explained how the incentive mechanism actually works.

The summary of the crucial forces affecting executive job performance is presented in Exhibit 3. Assuming a given set of capabilities of an executive, one may state that their job performance is directly dependent on their motivation. This can be divided


\textsuperscript{28} Ibidem, p. 192.

\textsuperscript{29} EY Norway, *Executive… op.cit.*
into intrinsic and extrinsic motivation. The split between those two was introduced to the discussion on employee motivation by B.S. Frey\textsuperscript{30}.

**Exhibit 3. Executive motivation and job performance cycle**

![Exhibit 3: Executive motivation and job performance cycle](source)


It is stated that people are **intrinsically motivated** when they do their work for work’s sake. This behavior arises from within the individual and is driven by internal rewards. "**Intrinsic motivation theories derive their fundamental ideas from some general assumptions about human needs on lines originally advocated by Abraham Maslow.**"\textsuperscript{31} Maslow ordered human needs starting from physiological needs, through safety, intimacy and self-esteem, up to the need for self-actualization. Whereas extrinsic motivation factors (such as money) most often focus on addressing basic needs, the intrinsic ones may potentially touch areas of self-actualization.

The theory of intrinsic motivation is highly applicable to senior executives since they are often responsible for making impactful decisions whose outcomes may be effective motivators. Many of such individuals are largely ambitious, value personal achievements, and enjoy other privileges such as status or power. In these circumstances, their motivation and performance is certainly determined by more than pecuniary incentives alone\textsuperscript{32}.


Extrinsic motivation is activated from outside the person who is concerned. These are typical employee incentives which may be positive (both pecuniary and non-pecuniary) but also negative (threat of financial loss or of dismissal). Extrinsic motivation directly refers to the topic of executive compensation and its structure. The positive agency theory assumes that extrinsic factors of motivation should be perceived by executives in a rational way. However, in reality these assumptions cannot be met and as it was shown by A. Pepper, there are several behavioral biases that affect executives’ perception of extrinsic motivation factors (i.e. mainly financial remuneration). The three main psychological effects that have been observed include: time discounting, risk aversion, and inequity aversion.

Additionally, supervision and monetary rewards for executives were found to crowd out intrinsic work motivation (work morale) under identifiable and relevant conditions. As shown by B.S. Frey, “work performance decreases if this crowding effect dominates the normally considered disciplining effect of external interventions.”

Finally, it is worth realizing that the connection between motivation and job performance is not only a static, single-sided relationship but a dynamic cycle. Usually, a manager’s performance is reflected in the principal’s feedback for an executive, which has a vital role in the process of goal setting. The process of goal setting and adequate contracting, especially when it includes discussion between the principal and agent about the expected targets, has been found to be positively correlated with the agent’s work motivation and performance.

Summing up, the findings of the behavioral agency theory expand the understanding of the incentive pay far beyond the point explained by the standard positive agency theory. Firstly, it shows that remuneration accounts only for a limited part of an executive’s job motivation and performance. Secondly, it states that common behavioral biases may heavily distort the intended links between compensation and performance and they must be seriously considered by compensation committees.

One of the most comprehensive global studies on behavioral aspects of executive compensation that is currently available is a survey carried out in 2012 by PwC in cooperation with LSE. It included over 1100 participants from 43 countries. It provides sound empirical proof for the three key behavioral distortions mentioned above and highlights many interesting differences by country.

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34 B.S. Frey, *On the relationship*... op.cit.
Time Discounting

In general, company shareholders, corporate governance authorities and regulators commonly assume that deferral in compensation payment is an effective incentive and an instrument properly aligning executives’ and long-term shareholders’ interests. However, behavioral economists have identified several anomalies in the way that individuals, including executives, account for time.

According to the financial theory, time differences should be adjusted by the conventional discount function. However, the results of the global study conducted by PwC\(^{37}\) show that when there is a deferral of payment, executives across the world apply discount rates that are largely exceeding the discount rates which are applicable according to the financial theory.

Differences between countries presented in *Exhibit 4*, apart from those caused by a different level of risk-free rate, are driven by overall economic and political stability, as well as cultural differences.

**Exhibit 4. Executives’ time discount rates applied to deferred compensation by country (2011)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Time discount rate</th>
<th>Risk-free rate</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>31.2%</td>
<td>9.5%</td>
<td>14</td>
</tr>
<tr>
<td>Australia</td>
<td>44.4%</td>
<td>3.4%</td>
<td>31</td>
</tr>
<tr>
<td>Brazil</td>
<td>43.0%</td>
<td>6.6%</td>
<td>52</td>
</tr>
<tr>
<td>China</td>
<td>30.5%</td>
<td>5.4%</td>
<td>51</td>
</tr>
<tr>
<td>France</td>
<td>24.4%</td>
<td>2.1%</td>
<td>35</td>
</tr>
<tr>
<td>Germany</td>
<td>14.6%</td>
<td>2.3%</td>
<td>31</td>
</tr>
<tr>
<td>India</td>
<td>17.2%</td>
<td>8.9%</td>
<td>31</td>
</tr>
<tr>
<td>Mexico</td>
<td>69.7%</td>
<td>3.4%</td>
<td>28</td>
</tr>
<tr>
<td>Netherlands</td>
<td>15.3%</td>
<td>2.4%</td>
<td>55</td>
</tr>
<tr>
<td>Poland</td>
<td>48.2%</td>
<td>4.2%</td>
<td>30</td>
</tr>
<tr>
<td>Russia</td>
<td>34.0%</td>
<td>8.4%</td>
<td>45</td>
</tr>
<tr>
<td>South Africa</td>
<td>52.1%</td>
<td>5.0%</td>
<td>31</td>
</tr>
<tr>
<td>Spain</td>
<td>18.2%</td>
<td>3.2%</td>
<td>30</td>
</tr>
<tr>
<td>Switzerland</td>
<td>15.0%</td>
<td>0.2%</td>
<td>40</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>39.4%</td>
<td>0.9%</td>
<td>75</td>
</tr>
</tbody>
</table>

\(^{37}\) Ibidem.
<table>
<thead>
<tr>
<th>Country</th>
<th>Time discount rate</th>
<th>Risk-free rate</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>27.4%</td>
<td>4.5%</td>
<td>34</td>
</tr>
<tr>
<td>United States</td>
<td>30.8%</td>
<td>3.2%</td>
<td>123</td>
</tr>
<tr>
<td>Other</td>
<td>49.0%</td>
<td>4.9%</td>
<td>20</td>
</tr>
<tr>
<td>Minimum</td>
<td>14.6%</td>
<td>0.2%</td>
<td>-</td>
</tr>
<tr>
<td>Maximum</td>
<td>69.7%</td>
<td>9.5%</td>
<td>-</td>
</tr>
<tr>
<td>Average</td>
<td>33.6%</td>
<td>4.4%</td>
<td>-</td>
</tr>
</tbody>
</table>


In the case of deferred cash payments made to an executive by a company, the appropriate discount rate should be close to the ‘risk-free’ interest rate (0.2–9.5% per annum depending on the locally observed inflation rate or interest rate paid by government bonds). The study, though, reveals that as far as compensation is concerned, executives tend to use much higher discount factors, typically around 30% annually. A clear consequence of this finding is an upward pressure on the overall compensation level. The country data also shows the need of differentiating policies globally.

**Risk and Uncertainty Aversion**

The other substantial bias refers to attitudes towards risk and uncertainty with regard to the remuneration scheme. While the majority of executives are expectedly risk averse, there is a certain part of participants (28%) who are active risk seekers ready to replace their fixed salary for a potentially higher but uncertain bonus (of a lower expected value). There have been identified significant differences in risk profiles between countries, e.g. senior executives in France, China and Mexico demonstrated a greater than average appetite for risk.

This observation confirms that performance-based pay has its cost for the company and as risky bonuses are subjectively discounted by executives, they may demand a premium to compensate for the difference.

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38 Ibidem.
Inequity Aversion

According to J.S. Adams\(^{39}\), employees, which applies to executive employees as well, form their perception of the fair balance between what they give in (including effort, commitment, and skills) and what they receive in return (pecuniary rewards, recognition and opportunities for personal growth) by comparing their own situation with those of other people. Reference points might be internal (peers, subordinates, superiors) or external (people doing the same jobs for different companies). If an executive feels that the relation between inputs and outputs is not fair compared to subjective benchmarks, then the agent will become dissatisfied and because of that less motivated\(^{40}\).

The PwC\(^{41}\) survey also confirms the theory and shows that for the majority of executives earning more than their peers was more important than earning a higher absolute pay. Nevertheless, there were exceptions – in China and Brazil over 50% indicated that higher absolute value was more motivating than a relatively higher salary. Similarly, in Central and Eastern Europe as much as 45% of executives felt that a higher absolute sum was more motivating.

It has two important practical implications. Firstly, although the increased level of disclosure, which is currently supported in many countries, has unquestionable benefits for investors in terms of transparency, it can be value destroying as it provides more opportunities for cross-comparisons. Consequently, executive pay may go up on average. The second thing refers to the compensation structure. On the one hand, complicated, multi-part compensation structures may be an effective tool to prevent executives from direct comparisons. On the other hand, complex setups may also provoke an unjustified feeling of unfairness, so manipulating with different components by compensation committees should be considerate.

Perception of Complexity in Executive Compensation

Another significant behavioral finding about executive compensation packages states that complexity and ambiguity in executive contracts destroy value. Attempts

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\(^{40}\) A. Pepper, *The Economic Psychology… op.cit.*

\(^{41}\) PwC, *Making Executive… op.cit.*
of creating managerial contracts perfectly addressing the agency problem may easily end up with extremely complex, performance-based structures including difficult to control and measure KPIs.

Based on the PwC global survey\textsuperscript{42}, over 65\% of executives preferred cash plans based on measures that were internal to their organization (e.g. earnings per share) than more ambiguous share plans based on the total shareholder return (including the impact of the market share price). The total shareholder return was mostly disliked in the UK, the Netherlands, Switzerland and Australia – i.e. countries which used this KPI already for the long time and experienced its fallacies in practice. The biggest issue with TSR for executives is a very limited control over its value due to market volatility, which turns out to be frustrating for many of them.

Accordingly, in almost every case, executives favored simpler contracts. The more complex the reward mechanism, the more willing they were to accept the lower but more predictable reward. This finding poses a warning with regard to many long-term incentive plans (LTIPs) that overly complicated systems are frequently counterproductive.

However, decision makers should always consider complexity in relative terms – “if executives deal with the metrics and reporting information that are linked to their awards as a regular part of their job, it will appear simpler to them than it would to someone who only comes across these measures when it comes to assessing their performance.”\textsuperscript{43}

\section*{Comparative Analysis of Executive Compensation by Country}

There have been rather few studies on the topic of international differences in an executive pay. One of the first extensive research works on the topic, by J.M. Abowd and M.L. Boganno\textsuperscript{44}, analysed remuneration costs from the employer’s perspective and the value of the received compensation package from the employee’s viewpoint in 12 OECD countries, and identified a significant variance in the compensation level and structure. At the same time, it concludes that “the integration of international goods and capital markets provides an economic mechanism driving total compensation costs

\textsuperscript{42} Ibidem. \\
\textsuperscript{43} Ibidem. \\
to equality across countries. The integration of world labor markets is required to drive the replacement value of the compensation package to equality across countries.”

The later study by M.J. Conyon and J. Schwalbach, focused solely on Europe, also confirmed significant differences in executive pay (its level and structure) across countries and analysed four different factors affecting these differences – job position, company size, country specific effects, and different board structures. As a result, they state that country effects on pay were not entirely eradicated by the internationalization of capital and labor markets. The board structure effects remained ambiguous.

In a more up-to-date paper, M. Fernandes, N.A. Ferreira, P. Matos, and K.J. Murphy made use of the expanded disclosure rules to conduct an international comparative analysis of CEO compensation in 14 countries in 2006 to verify if US CEOs are paid significantly higher than in the rest of the world. They proved that, after controlling for company size, ownership and board characteristics, the premium received by American executives is negligible (2% in 2007). This difference has declined substantially since 2003 (58%). Cross-country differences in corporate governance with regard to company ownership and board structures proved to be highly significant in international comparisons of the CEO compensation level and its structure.

The majority of the existing comparative analyses were primarily focused on compensation level benchmarking. In order to supplement these findings and provide practical insights to help address the agency problem in a more effective way, we have gathered more detailed data on the executive compensation structure in five countries – the US, the UK, Australia, Poland, and Norway. Data that was used are selected based on publicly available disclosures of the group of the largest publicly listed companies in each country. We are aware that such data may be prone to some methodological weaknesses (such as different average company sizes in the analysed countries). However, in the context of this paper, they demonstrate a valuable view on major structural divergences between the countries.

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48 Ibidem.
Compensation Package Structure

As it was shown above, the structure of the compensation package is more important than its value in creating incentives for executives and aligning their interests with shareholders’. A precise comparison of the managerial pay structure by country is difficult because of different reporting requirements and subtle differences in definitions of the pay components. However, available market reports provided by international consulting companies allowed extracting the basic split of the executive remuneration to distinguish its fixed part as well as short-term and long-term incentives. Exhibit 5 presents the simplified structure comparison for the analysed countries.

Exhibit 5. Executive compensation structure of publicly listed companies in selected countries (2014)


As for the share of the variable component, the USA proved to be the market where performance-based compensation is most commonly used and for 300 companies included in the WSJ/Hay Group Index its average share exceeded 85%\textsuperscript{49}. Norway

remains on the opposite side of the scale with 35% average share of the variable component among 57 companies included in OSEBX index\textsuperscript{50}. Another characteristic of executive pay in Norway is a higher than elsewhere value of various employee benefits including pension funds arranged by the companies. These features demonstrate a strong preference towards stability for executives within Scandinavian companies, which was also observed in an executive search expert interview.

The latter two European countries in the sample demonstrated a moderate balance between the fixed and variable pay. The UK visibly converges to the US model with an average of almost 70% of incentive among FTSE 350 companies\textsuperscript{51}. The analysed Polish companies from the WIG index, similarly to Norwegian ones, use a rather conservative approach to performance-pay, keeping its share below 45%. It remains in line with the low willingness to take risks by Polish managers\textsuperscript{52}.

Australia, which should be theoretically affected by Anglo-American business culture, demonstrates a surprisingly high level of the fixed salary (over 40%) in the average executive compensation among the sample of 100 largest listed companies\textsuperscript{53}.

Based on these results one can state that a higher share of the fixed salary for executives is preferred in the countries dominated by the German corporate governance model, which implies a more distinct separation of executive and non-executive boards (Poland and Norway).

**Construction of Performance-Based Compensation**

The second important dimension of the executive compensation is the construction of the variable compensation instruments and the underlying measures that determine the pay-off. In this field, average executive contracts in the analysed countries demonstrate fewer differences.

Unfortunately, when it comes to short-term incentives (STI), disclosure of the detailed metrics used to determine their value is not required by regulations in most of the countries, which makes it difficult to track and analyse. Based on market statistics found for Norway and Australia (See Exhibit 6), STIs (such as cash bonuses) are usually based on annual or quarterly reported figures. Those can include detailed, company-specific operational measures. In general, depending on a specific executive

\textsuperscript{50} EY Norway, *Executive…* op.cit.
\textsuperscript{51} EY UK, *FTSE 350…* op.cit.
role, these are either financial (e.g. revenue, profit or costs) or non-financial factors (e.g. market share, safety measures, people management indicators).

Exhibit 6. KPIs used in STI plans in Australia and Norway (2014)

<table>
<thead>
<tr>
<th>Financial</th>
<th>Non-financial</th>
<th>Financial</th>
<th>Non-financial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit (84%)</td>
<td>Business strategy (68%)</td>
<td>Profit (31%)</td>
<td>People measures (67%)</td>
</tr>
<tr>
<td>Return (38%)</td>
<td>People measures (66%)</td>
<td>Return (24%)</td>
<td>Health/Safety/Environment (11%)</td>
</tr>
<tr>
<td>Costs (38%)</td>
<td>Health/Safety/Environment (52%)</td>
<td>Others (49%)</td>
<td>Business strategy (13%)</td>
</tr>
</tbody>
</table>

Note: Percentage in the brackets shows the share of the companies declaring the usage of the KPI. Percentages do not sum up to 100 as companies can use multiple KPIs.

Apart from KPIs, an interesting observation with regard to executive STI concerns the differences in the level of deferral by country. According to Deloitte Executive Compensation Consulting\(^{54}\), most companies in the UK provide short-term bonuses that are at least partly deferred for periods from one year up to three years. Deferral in the USA is less common than in the UK but still exists in some companies. In Australia, deferring part of the bonus into shares is becoming increasingly common. Based on the expert interview working in the Central and Eastern Europe region, the popularity of deferred bonuses in a country depends substantially on the level of political and economic stability. For example, immediate cash bonuses are dominant in Russia, whereas deferred rewards are widely used and accepted in the Czech Republic.

As far as long-term incentives are concerned, the most common KPIs used to determine their value are virtually the same in all the analysed countries\(^{55}\). The most prevalent determinants of the long-term incentive plans (See Exhibit 7) focus around total shareholder return (usually relative to comparative companies), earnings per share, and return measures (usually absolute).

The basic overview of the most popular KPIs used to determine short-term and long-term executive incentives shows that despite substantially different weights of these compensation instruments observed by country, their intended role and targets remain consistent between markets. As a result, one can state that the nature of KPIs


\(^{55}\) There is no publicly available data on LTI KPIs in Poland but the similar trend was mentioned by executive recruitment specialists in interviews.
is not subject to cultural or behavioral differences unlike the overall variability of the package or the level of deferral, which should be adjusted to local preferences.

Exhibit 7. KPIs used in LTI plans – Ranking of the most common measures by country (2014)

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>UK</th>
<th>Australia</th>
<th>Norway</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Return measures</td>
<td>1. TSR (Relative)</td>
<td>1. TSR (Relative)</td>
<td>1. EPS</td>
<td></td>
</tr>
<tr>
<td>2. TSR</td>
<td>2. Return measures (Absolute)</td>
<td>2. EPS (Absolute)</td>
<td>2. TSR</td>
<td></td>
</tr>
<tr>
<td>3. EPS</td>
<td>3. EPS (Absolute)</td>
<td>3. Return measures (Absolute)</td>
<td>3. Other</td>
<td></td>
</tr>
</tbody>
</table>


Conclusion and Design Recommendations for Executive Compensation

Research Conclusion

This paper investigates various aspects of executive compensation such as package structure, determinants of the incentive pay, and its relation to company performance. The review of the literature on the subject and available market reports lead to the following conclusions:

1. Contemporary executive compensation packages consist of multiple components that play various roles. Whereas some instruments are dedicated to providing the link to company performance (short-term and long-term incentives), the other can be used to reduce a manager’s propensity to excessive risk-taking (deferred bonuses) or ensure stability and work effectiveness (e.g. perquisites, benefits).

2. Equity-based executive compensation (such as stock option grants) provides the strongest link to company performance.

3. There are two interrelated types of executives’ job motivation – i.e. extrinsic and intrinsic motivation. Extrinsic factors (such as pecuniary compensation) may have a negative impact on intrinsic motivation. Depletion of executive intrinsic motivation generates a significant cost for company shareholders.

4. Behavioral biases such as time discounting, risk aversion, inequity aversion, and complexity aversion decrease the perceived value of executive compensation. The intensity of these effects varies by country. It causes an upward pressure on its objective level, which represents a cost of incentive pay adoption for company shareholders.
5. Ongoing internationalization of capital and labour markets does not translate into the unification of the compensation structure across countries. On the other hand, the set of KPIs used for determining variable executive compensation reveal a substantial level of convergence across markets.

6. One of the reasons for the variance in the executive compensation level and differences in its structure across countries are differences in the applied corporate governance models.

**Design Recommendations**

There is no single executive compensation policy that could satisfy diversified needs of different companies operating on different markets. Reapplication of a successful model from one company to the other may turn out to be totally invalid.

However, based on the findings of this article, the set of guidelines for designing an effective compensation package for senior level executives can be proposed:

1. Apart from measuring the total package value (including equity-based components valuation), compensation committees should consciously decide on the overall compensation sensitivity to company performance. The sensitivity should not be maximized but balanced with other essential objectives such as excessive risk avoidance and stability preferences.

2. Intrinsic motivation must be taken into consideration when analysing the potential impact of executive compensation. Compensation packages should be designed in a way that minimizes the negative impact on the intrinsic motivation and allows leveraging its positive impact – e.g. through implementing non-pecuniary recognition mechanisms.

3. Having in mind the prevalence of different behavioral effects on managers’ perception around the globe, companies should try to identify the preferences of individual executives and set the compensation policy accordingly.

4. Compensation committees should carefully set proper KPIs for bonuses that are clearly linked to the field of individual responsibility. E.g. the relative total shareholder return as a KPI for the CEO properly addresses common agency issues.

5. Determinants of the variable compensation (KPIs) for a specific role, once proved to work properly, can be effectively reapplied across countries, whereas the structure of the package should be rather decided case by case.
Bibliography


Should Investors on Equity Markets Be Superstitious (on the Example of 52 World Stock Indices)?

**Abstract**

The problem of efficiency of financial markets, especially the weekend effect, has always fascinated scientists. The issue is significant from the point of view of assessing the portfolio management effectiveness and behavioral finance. This paper tests the hypothesis of the unfortunate dates effect upon 52 equity indices in relation to the following four approaches: close–close, overnight, open-open, open-close calculated for the sessions falling on the 13th and 4th day of the month, Friday the 13th, Tuesday the 13th. In the following part of the paper, the statistical equality of one-session average rates of return (close-close) for sessions falling on Friday 13th and sessions falling on other Friday sessions will be compared, as well as for sessions falling on Tuesday the 13th and sessions falling on other Tuesdays. The last part of the paper consists of the analysis of the correlation coefficients of Friday the 13th (close-close) rates of return calculated for the analyzed equity indices’ pairs.

**Keywords:** market efficiency, calendar anomalies, Friday the 13th, Tuesday the 13th, unfortunate dates effect

**JEL Codes:** G14, G15, C12
1. Introduction

The Efficient Market Hypothesis (EMH), introduced by Fama in 1970 belongs to the most important paradigms of the traditional financial theories\(^1\). According to this hypothesis, an efficient market was defined as a market with large numbers of rational individuals, maximizing their profit and actively competing with each other and trying to predict future market values of specific securities, and where all relevant information is freely available to investors\(^2\). The presence of calendar anomalies has been presented extensively for the last three decades in financial markets. The most common ones are the day-of-the-week effect, monthly effect, weekend effect, holiday effects, within-the-month effect, turn-of-the-month effect, which were all analyzed by various researchers\(^3\).

Another issue is the behavior of investors during the days considered by them to be unlucky. In Western Europe, every 13\(^{th}\) day of a month, especially the 13\(^{th}\) day of the month when falling on a Friday is believed to be unlucky. In turn, in Spanish-speaking countries (e.g. Spain, Uruguay, Argentina, Chile, Peru, Venezuela and Colombia), it is assumed that the date of bringing bad luck is Tuesday the 13\(^{th}\), which is expressed in the following Spanish proverb: *trece martes ni te cases, ni te embarques*

\(^3\) For example:
Should Investors on Equity Markets Be Superstitious (on the Example of 52 World Stock Indices)?

(Tuesday the 13th, don’t get married and don’t travel). On the other hand, in China, an unlucky date is every fourth day of the month. Many Chinese people believe number 4 to be unlucky, whilst considering number 8 to be a lucky one. In some Chinese dialects, number 8 is pronounced like the word “prosperity”, while number 4 is similar to the word “death”. Apparently, the Chinese vary in their definition of which numbers are lucky. Shum et al. defined both 6 and 8 as lucky, while Hirshleifer et al. considered 6, 8 and 9 to be lucky.

Statistically, an important difference between daily average rates of return registered on the stock market considered by investors as an unlucky date and daily average rates of return calculated for the other days of the month can be called “the unfortunate dates effect”. The number of studies on “the unfortunate dates effect” in scientific literature is rather low.

The aim of this paper is to examine the prevalence of the unfortunate dates effect on the markets of 52 equity indices. The paper is divided into six parts. In the first four parts, the analysis of the unfortunate dates effect will apply to the returns calculated on the basis of the following prices: (1) last session close – previous session close (close-close), (2) last session open – previous session close (overnight), (3) last session open – previous session open (open-open) and (4) last session close – last session open (open-close). All these calculations will be carried out for the following two populations: (1) the 13th day of the month rates of return vs rates of return for all other sessions, (2) Friday the 13th rates of return vs rates of return for all other sessions, (3) Tuesday the 13th rates of return vs rates of return for all other sessions and (4) the 4th day of month rates of return vs rates of return for all other sessions. In the fifth part of the paper, the one-session rates of return for Friday the 13th session will be compared with the one-session rates of return for all other Fridays. In turn, in the second part of the fifth part of the paper, a similar analysis for the rates of return for Tuesday the 13th and all other Tuesdays will be conducted. The last part of the paper consists of the analysis of the correlation coefficients of Friday the 13th (close-close) rates of return calculated for the analyzed equity indices’ pairs.

Previous research focused on the calculation of rates of return only for the following scheme: Friday the 13th close – others Fridays’ close. The author is not aware of the papers analyzing the Friday the 13th effect with the use of the rates of return

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different to the close-close scheme. This article attempts to fill this gap, as well as expand research for Tuesday the 13th and for the sessions falling on the 4th day of the month.

2. Literature Review

Belief in the ill-fortune that supposedly accompanies the of 13th as well as the date of Friday the 13th is widespread across the Western world and has ancient and somewhat uncertain origins. Both number 13 and Friday are characterized by long and separate histories associated with “bad luck”. It is believed that these two were combined in order to create an unfortunate date at the beginning of the 20th century. In literature there are a lot of explanations for these two lines of superstitions: Christ was crucified on Friday, and the number of people seated at the table for the Last Supper was 13. Even in advanced countries, people are prone to superstitions such as daily newspapers publishing horoscopes to guide their readers. Nowadays many buildings skip the thirteenth floor, streets lack number 13 and hospitals decline to label their operating theatres with that number. Fudenberg and Levine theorize that superstitious beliefs can persist if the probability of being exposed as untrue is sufficiently low. If there is always any chance of a bad outcome when following the superstition and some chance of a good outcome when not following the superstition, any person might not realize that the belief is untrue, and, persists in the superstition. Psychology and anthropology researchers suggest that people rely on superstition as a way to cope with misfortune and uncertainty, and to rationalize a complex world.

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9 For example:
2. USA Today, Some hotels don’t skip the 13th floor anymore, August 3, 2007.
12 For example:
Scanlon et al. found that the number of traffic accidents in the UK is higher on Friday the 13th, in spite of the smaller number of cars being on the roads\textsuperscript{13}. Kolb and Rodriguez\textsuperscript{14}, in one of the first studies linking superstition with the stock market, proved that the average Friday 13th rates of return are significantly lower than the average rates of return for all other Fridays but the later papers of Dyl and Maberly\textsuperscript{15}, Agrawal and Tandon\textsuperscript{16}, Coutts\textsuperscript{17} and Lucey\textsuperscript{18} conceded the reverse pattern: the average returns on Fridays the 13th were higher than those on regular Fridays. Dyl and Maberly proved that in five out of the six analyzed periods, Friday the 13th rates of return turned out to be positive and higher compared to other Fridays and the only period when the Friday the 13th rates of return were in the red compared to other Fridays rates of return, fell during the 1970s\textsuperscript{19}.

Fortin et al. investigated the effect of superstition on the prices of single-family homes in Great Vancouver in Canada\textsuperscript{20}. In the neighborhoods with relatively more Chinese residents and in repeated transactions, the sales of the houses with street address numbers ending in “4” were 2.2% lower, while those ending in “8” were 2.5% higher than other houses. According to Agarwal et al, on a per square meter basis, units with numbers ending in “4” were discounted by 1.1%, units on the floor with numbers ending in “4” were discounted by 0.5%, while units with numbers ending in “8” commanded a 0.9% premium\textsuperscript{21}. Ng et al. studying the auction prices between 1997 and 2009 proved that the prices of license numbers including the lucky number 8 were systematically higher, while the prices of license numbers with the unlucky

\textsuperscript{15} E. Dyl, E. Maberly, \textit{The anomaly that isn’t there: A comment on Friday the Thirteenth}, “Journal of Finance” 1988, Vol. 43, pp. 1286–1295.
number “4”, were lower\textsuperscript{22}. Besides, the premium for “8” could also be interpreted as conspicuous spending to signal wealth or status\textsuperscript{23}.

Boyle et al., analyzing daily returns of the index NZSE40, the value-weighted capital index of the 40 largest securities by market capitalization on the New Zealand Stock Exchange in the period 01.01.1967–30.11.2001, certified the average rates of return for Fridays the 13\textsuperscript{\textsuperscript{th}} were not statistically different form the rates of return for regular Fridays\textsuperscript{24}. The name of “the Friday the Thirteenth effect”, introduced by Kolb and Rodriguez\textsuperscript{25} has been regularly used by different researchers\textsuperscript{26}. Coutts examining the Friday the 13\textsuperscript{th} effect in the UK with the use of FTSE index in the period of 59 years, proved that in most cases the rates of return registered for Friday the 13\textsuperscript{th} were positive and higher compared to other Fridays’ rates of return but statistical significance was not observed\textsuperscript{27}. Patel, analyzing the period of 58 years for NASDAQ and S&P 500 index, discovered that in four out of the seven periods, the rates of return for Friday the 13\textsuperscript{th} were positive and higher than the rates of return calculated for other Fridays\textsuperscript{28}.

Hirshleifer et al. found that the superstition affected the pricing of initial public offerings in China in the period of 1991–2005\textsuperscript{29}. On Shanghai and Shenzhen stock exchanges, listed companies are identified by a numerical code, which is the equivalent of the US ticker. Consistent with the superstition, newly listed equities with lucky

\textsuperscript{26} For example:

listing codes (that included at least one lucky digit and no unlucky digit) that initially traded at a premium dissipated within three years. Botha analyzed the Friday the 13th effect for the samples from stock exchanges in Kenya, Morocco, Nigeria, South Africa and Tunisia30. Auer and Rottmann proved that the Friday the 13th effect was not registered for the Stock Exchange in the Phillipines31. Kalayaan found out that the mean returns for Friday the 13th were inferior than that of other Fridays or other days and that the Friday the 13th effect was evident during the period from June 1992 to May 2015 for the PSEI index32.

3. Data and Methods

The research is divided into six parts. The calculations were proceeded concerning 52 world stock indices (in the brackets the date of the first session included in the analysis, quotation from the Reuters Service):


The last session considered in the process of calculating the rates of return was 30.12.2016.

In the case of two populations, the null hypothesis $H_0$ and the alternative hypothesis $H_1$ regarding equality of rates of return in two populations, can be formulated as follows:

$$H_0 : E(\bar{r}_1) = E(\bar{r}_2)$$

$$H_1 : E(\bar{r}_1) \neq E(\bar{r}_2) \quad (1)$$

where:

$\bar{r}_1$ – average rate of return in the first population;

$\bar{r}_2$ – average rate of return in the second population.

On the basis of two independent populations of the rates of return, whose sizes equal $n_1$ and $n_2$, respectively, the hypotheses $H_0$ and $H_1$ should be tested with the use of statistics $z^{33}$:

$$z = \frac{\bar{r}_1 - \bar{r}_2}{\sqrt{\left(\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}\right)}} \quad (2)$$

where:

$S_1^2$ – variance of rates of return in the first population;

$S_2^2$ – variance of rates of return in the second population;

$n_1$ – number of observations in the first population;

$n_2$ – number of observations in the second population.

In the case when the population variances are unknown and cannot be assumed that they are equal, the number of degrees of freedom will be expressed according to the following formula$^{34}$:

$$df = \frac{\left(\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}\right)^2}{\left(\frac{S_1^2}{n_1}\right)^2 + \left(\frac{S_2^2}{n_2}\right)^2} \quad (3)$$

In the following part of the analysis, parametric tests of Kruskal-Wallis will be implemented. The Kruskal-Wallis test statistics is given by$^{35}$:

---

\[ H = \frac{12}{N(N+1)} \sum_{i=1}^{i=g} n_i \bar{r}_i^2 - 3(N+1) \] (4)

where:

- \( N \) – total number of observations across all the groups;
- \( \bar{r}_i = \frac{\sum_{j=1}^{n_i} r_{ij}}{n_i} \) – average rank of all the observations in group \( i \);
- \( n_i \) – number of observations in group \( i \);
- \( r_{ij} \) – the rank (among all the observations) of observation \( j \) from group \( i \).

In all the analyzed cases, the \( p \)-values will be calculated. If the \( p \)-value is less than or equal to 0.05, then hypothesis \( H_0 \) is rejected in favor of hypothesis \( H_1 \). Otherwise, there is no reason to reject hypothesis \( H_0 \).

For each of the analyzed indices the following rates of return will be calculated:

a) Close – Close: \( \frac{C_t - C_{t-1}}{C_{t-1}} \) (last session close vs previous session close)

b) Overnight: \( \frac{O_t - C_{t-1}}{C_{t-1}} \) (last session open vs previous session close)

c) Open – Open: \( \frac{O_t - O_{t-1}}{O_{t-1}} \) (last session open vs previous session open)

d) Open – Close: \( \frac{C_t - O_t}{O_t} \) (last session close vs last session open)

Where:

- \( C_t \) – closing price in period \( t \);
- \( C_{t-1} \) – closing price in period \( t-1 \);
- \( O_t \) – open price in period \( t \);
- \( O_{t-1} \) – open price in period \( t-1 \).

The paper consists of six parts:

In the first part, the test for equality of two average rates of return will be exemplified for the rates of return in two populations. Assuming that if the first population is composed of the rates of return calculated for the session on the 13th day of the month, then the second population determines the rates of return for all the remaining sessions.

In the second part, the test for equality of two one-session average rates of return will be exemplified for the rates of return in two populations. Assuming that if the first population is composed of the rates of return calculated for the session falling
on Friday the 13th day of the month, then the second population determines the rates of return for all the remaining sessions.

In the third part, the test for equality of two average rates of return will be exemplified for the rates of return in two populations. Assuming that if the first population is composed of the rates of return calculated for the session falling on Tuesday the 13th day of the month, then the second population determines the rates of return for all the remaining sessions.

In the fourth part, the test for equality of two average rates of return will be exemplified for the rates of return in two populations. Assuming that if the first population is composed of the rates of return calculated for the session falling on the 4th day of the month, then the second population determines the rates of return for all the remaining sessions.

In the fifth part, the test for equality of two average rates of return will be exemplified for the rates of return in two populations. Assuming that if the first population is composed of the rates of return calculated for the sessions falling on Friday the 13th, then the second population determines the rates of return for all the remaining Fridays. In the second part of the fifth part, the test for equality of two average rates of return will be computed under the assumption that the first group of data consists of the rates of return for sessions falling on Tuesday the 13th and the second group is composed of the rates of return for all the remaining Tuesdays. In this part only close-close rates of return will be calculated.

In the sixth part, the rates of return correlation coefficients will be calculated for 52 world equity indices. The rates of return (close – close) will be computed for the sessions falling on Friday the 13th.

The following scheme of presentation of results will be applied in the paper:

- $H_0^z$ – companies for which the null hypothesis was rejected with the use of $z$ statistics. The value of parameter $p$ is given in the brackets. In other cases, there was no reason to reject the null hypothesis in favor of the alternative hypothesis.

- $H_0^{KW}$ – companies for which the null hypothesis was rejected with the use of Kruskal-Wallis test. The value of parameter $p$ is given in the brackets. In other cases, there was no reason to reject the null hypothesis in favor of the alternative hypothesis.

- $p_0^z$ – companies for which the value of parameter $p$ calculated with the $z$ statistics is greater than 0.05 and less than 0.1. The value of parameter $p$ is given in the brackets.

- $p_0^{KW}$ – companies for which the value of parameter $p$ calculated with the Kruskal-Wallis test is greater than 0.05 and less than 0.1 statistics. The value of parameter $p$ is given in the brackets.

The names of the companies for which the null hypothesis was rejected both in terms of statistics and Kruskal-Wallis are presented in italics.
4. Analysis of the Results

4.1. The analysis of the calendar effect – 13\textsuperscript{th} day of the month

The results of testing the zero hypothesis with the use of average rates of return for two different populations permit to draw the following conclusions (see also Table 1):

a) Close – close rates of return
\( H_0^Z: \) HANG SENG (0.0228), IBEX (0.0254).
\( H_0^{KW}: \) ALL ORDINARIES (0.0333), HANG SENG (0.0345), KLCI (0.0308), MICEX (0.0128), SET (0.0130), STRAIT TIMES (0.0438), UX (0.0369) and WIG (0.0220), \( p_0^{KW}: \) ATHEX COMPOSITE (0.0538), DJTA (0.0761), JCI (0.0613), NASDAQ COMPOSITE (0.0655), RTS (0.0868), SENSEX (0.0760), S&P 500 (0.0570).

b) Overnight rates of return
\( H_0^Z: \) HANG SENG (0.0032), JCI (0.0189) and SET (0.0093), \( p_0^Z: \) BOVESPA (0.0824), IBEX (0.0567) and NASDAQ 100 (0.0986).
\( H_0^{KW}: \) DAX (0.0321), \( p_0^{KW}: \) ATHEX COMPOSITE (0.0558), BOVESPA (0.0868), IPC (0.0890), RTS (0.0823), SET (0.0565), S&P 500 (0.0506) and UX (0.0927).

c) Open-Open rates of return
\( H_0^Z: \) AEX (0.0334), ALL ORDINARIES (0.0212), HANG SENG (0.0011), SET (0.0059) and UK 100 (0.0411), \( p_0^Z: \) JCI (0.0722), UX (0.0845) and SOFIX (0.0693).
\( H_0^{KW}: \) AEX (0.0443), DAX (0.0472), IPC (0.0413) and SMI (0.0450), \( p_0^{KW}: \) PSEI (0.0682).

d) Open-Close rates of return
\( p_0^Z: \) DJTA (0.0817) and XU 100 (0.0842).
\( H_0^{KW}: \) ALL ORDINARIES (0.0161), FTSE 250 (0.0389), HANG SENG (0.0480), MICEX (0.0041), NIKKEI (0.0151), PSEI (0.0226), SENSEX (0.0133), XU 100 (0.0281), \( p_0^{KW}: \) STRAIT TIMES (0.0813) and WIG (0.0613).
Table 1. Selected statistics of the rates of return for sessions falling on the 13th day of the month

<table>
<thead>
<tr>
<th></th>
<th>Highest percentage of positive returns</th>
<th>Lowest percentage of positive returns</th>
<th>The highest one-session average rate of return</th>
<th>The lowest one-session average rate of return</th>
<th>The number of indexes for which the positive one-session average rates of return were observed</th>
<th>The number of indexes for which the negative one-session average rates of return were observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close-close</td>
<td>IBEX (61.11)</td>
<td>SET (44.59)</td>
<td>UX (0.5834%)</td>
<td>ICEX (-0.2442%)</td>
<td>36 (69.23%)</td>
<td>16 (30.77%)</td>
</tr>
<tr>
<td>Overnight</td>
<td>OSE (63.98)</td>
<td>AMEX (40.00)</td>
<td>UX (0.6439%)</td>
<td>BEL20 (-0.1955%)</td>
<td>41 (78.85%)</td>
<td>11 (21.15%)</td>
</tr>
<tr>
<td>Open-Open</td>
<td>AMEX (57.53%)</td>
<td>SOFIX (40.32%)</td>
<td>UX (0.7828%)</td>
<td>HANG SENG (-0.2184%)</td>
<td>26 (50.00%)</td>
<td>26 (50.00%)</td>
</tr>
<tr>
<td>Open-Close</td>
<td>OMX Stockholm (60.00%)</td>
<td>XU (44.08%)</td>
<td>BEL 20 (0.1843%)</td>
<td>MICEX (-0.2635%)</td>
<td>24 (46.15%)</td>
<td>28 (53.85%)</td>
</tr>
</tbody>
</table>

Source: the author's own calculation.

The highest one–session average rate of return in three out of four cases was registered for UX index.

4.2. The analysis of the calendar effect – 13th day of the month falling on Friday

The results of testing the zero hypothesis with the use of average rates of return for two different populations permit to draw the following conclusions (see also Table 2):

a) Close – close rates of return

$H_0^*: \text{ATHEX COMPOSITE (0.0367), HANG SENG (0.0260), JCI (0.0429), KLCI (0.0135), MICEX (0.0488), SET (0.0049), STRAIT TIMES (0.0425) and WIG (0.0369), } p_0^*: \text{ALL ORDINARIES (0.0711), FTSE 250 (0.0800) and RTS (0.0619).}$

$H_0^{KW}: \text{DJUA (0.0186), HANG SENG (0.0481) and IBEX (0.0241), } p_0^{KW}: \text{ALL ORDINARIES (0.0681), SSE B SHARES (0.0764) and XU 100 (0.0932).}$

b) Overnight rates of return

$H_0^*: \text{DAX (0.0137), IPC (0.0207), JCI (0.0136), OSE (0.0454) and SET (0.0167), } p_0^*: \text{AMEX (0.0549), ATHEX COMPOSITE (0.0981), HANG SENG (0.0759), KLCI (0.0712) and RTS (0.0974).}$

$H_0^{KW}: \text{DJUA (0.0206), HANG SENG (0.0117), OSE (0.0149), SET (0.0089), } p_0^{KW}: \text{IBEX (0.0521), IPSA (0.0645) and RTS (0.0627).}$
c) **Open-Open rates of return**

\( H_0^z \): DAX (0.0317), IPC (0.0406) and PSEI (0.0449), \( p_0^z \): AEX (0.0765), DJIA (0.0595) and SET (0.0875).

\( H_0^{KW} \): ALL ORDINARIES (0.0260), HANG SENG (0.0044), SET (0.0263) and SOFIX (0.0395), \( p_0^{KW} \): PSI 20 (0.0803).

d) **Open-Close rates of return**

\( H_0^z \): HANG SENG (0.0213), FTSE 250 (0.0303), MICEX (0.0068), NIKKEI (0.0091), STRAIT TIMES (0.0393) and WIG (0.0241), \( p_0^z \): ALL ORDINARIES (0.0636), PSEI (0.0575) and SENSEX (0.0578).

\( H_0^{KW} \): ALL ORDINARIES (0.0466), DJTA (0.0490), DJUA (0.0253) and XU 100 (0.0436), \( p_0^{KW} \): NIKKEI (0.0884) and SSE B SHARES (0.0732).

### Table 2. Selected statistics of the rates of return for sessions falling on the 13th day of the month and Friday

<table>
<thead>
<tr>
<th></th>
<th>Highest percentage of positive returns</th>
<th>Lowest percentage of positive returns</th>
<th>The highest one-session average rate of return</th>
<th>The lowest one-session average rate of return</th>
<th>The number of indexes for which the positive one-session average rates of return were observed</th>
<th>The number of indexes for which the negative one-session average rates of return were observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close-close</td>
<td>PSI 20 (60.00)</td>
<td>MICEX (33.33)</td>
<td>MERVAL (0.6645%)</td>
<td>MERVAL (−1.1028%)</td>
<td>16 (30.77%)</td>
<td>36 (69.23%)</td>
</tr>
<tr>
<td>Overnight</td>
<td>MERVAL (68.24)</td>
<td>AMEX (30.00)</td>
<td>MERVAL (0.5029%)</td>
<td>BEL20 (−0.9853%)</td>
<td>22 (42.41%)</td>
<td>30 (57.69%)</td>
</tr>
<tr>
<td>Open-Open</td>
<td>XU 100 (60.00)</td>
<td>SOFIX (34.62)</td>
<td>XU 100 (0.6245%)</td>
<td>RTS (−1.1147%)</td>
<td>16 (30.77%)</td>
<td>36 (69.23%)</td>
</tr>
<tr>
<td>Open-Close</td>
<td>NASDAQ COMPOSITE (57.64)</td>
<td>MICEX (25.00)</td>
<td>IPC (0.2301)</td>
<td>MICEX (−0.7337%)</td>
<td>22 (42.31%)</td>
<td>30 (57.69%)</td>
</tr>
</tbody>
</table>

Source: the author’s own calculation.

The lowest percentage of positive returns was registered in two cases out of four for MICEX index, as well as the lowest one-session average rate of return. In turn, the highest one-session average rate of return was observed for MERVAL index.

### 4.3. The analysis of the calendar effect – 13th day of the month falling on Tuesday

The results of testing the zero hypothesis with the use of average rates of return for two different populations permit to draw the following conclusions (see also Table 3):
a) Close – close rates of return
\(H_0^z: BUX (0.0341)\) and \(EOE (0.0306)\), \(p_0^z: \) ATHEX COMPOSITE (0.0642), BEL 20 (0.0532), IBEX (0.0790), MERVAL (0.0611) and PX (0.0561).
\(H_0^{KW}: \) BEL 20 (0.0328), \(BUX (0.0315)\), DJUA (0.0008), \(EOE (0.0066)\), IBEX (0.0475), JCI (0.0343), PX (0.0178) and TEC DAX (0.0095), \(p_0^{KW}: \) HEX (0.0537) and NASDAQ COMPOSITE (0.0655).

b) Overnight rates of return
\(H_0^z: AEX (0.0381)\), HANG SENG (0.0897), \(DJTA (0.0159)\), \(DJUA (0.0024)\) and \(SET (0.0220)\), \(p_0^z: \) BUX (0.0903), DJIA (0.0683) and S&P 500 (0.0650).
\(H_0^{KW}: \) DJTA (0.0402), \(DJUA (0.0002)\) and \(SET (0.0159)\), \(p_0^{KW}: \) BUX (0.0742) and IPSA (0.0941).

c) Open-Open rates of return
\(H_0^z: \) ALL ORDINARIES (0.0372) and OMX STOCKHOLM (0.0166), \(p_0^z: \) HANG SENG (0.0547), HEX (0.0708), PSI 20 (0.0961).
\(H_0^{KW}: \) ALL ORDINARIES (0.0153), OMX STOCKHOLM (0.0430), \(p_0^{KW}: \) WIG (0.0943).

d) Open-Close rates of return
\(H_0^z: AEX (0.0262)\), \(BEL 20 (0.0330)\), \(EOE (0.0075)\), PX (0.0206) and \(UX (0.0098)\), \(p_0^z: \) ATHEX COMPOSITE (0.0998), IBEX (0.0766), OMX STOCKHOLM (0.0597) and SSE B SHARES (0.0703).
\(H_0^{KW}: \) BEL 20 (0.0205), DJUA (0.0041), \(EOE (0.0168)\), HEX (0.0467), IBEX (0.0310), OMX STOCKHOLM (0.0390), PX (0.0042), SSE B SHARES (0.0280), TEC DAX (0.0124) and \(UX (0.0161)\), \(p_0^{KW}: \) BUX (0.0650), JCI (0.0569), PSI 20 (0.0846).

Table 3. Selected statistics of the rates of return for sessions falling on the 13th day of the month and Tuesday

<table>
<thead>
<tr>
<th></th>
<th>Highest percentage of positive returns</th>
<th>Lowest percentage of positive returns</th>
<th>The highest one–session average rate of return</th>
<th>The lowest one–session average rate of return</th>
<th>The number of indexes for which the positive one–session average rates of return were observed</th>
<th>The number of indexes for which the negative one–session average rates of return were observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close-close</td>
<td>EOE (74.29)</td>
<td>SSE B SHARES (33.33)</td>
<td>MERVAL (0.9460%)</td>
<td>ICEX (−1.1167%)</td>
<td>34 (65.38%)</td>
<td>18 (34.62%)</td>
</tr>
<tr>
<td>Overnight</td>
<td>SOFIX (59.30)</td>
<td>AMEX (28.00)</td>
<td>XU100 (0.6011%)</td>
<td>HANG SENG (−0.3073%)</td>
<td>31 (59.62%)</td>
<td>21 (40.38%)</td>
</tr>
<tr>
<td>Open-Open</td>
<td>BOVESPA (67.44)</td>
<td>MICEX (33.33)</td>
<td>BEL 20 (1.0144%)</td>
<td>HEX (−0.4470%)</td>
<td>26 (50.00%)</td>
<td>26 (50.00%)</td>
</tr>
<tr>
<td>Open-Close</td>
<td>UX (90.91)</td>
<td>SSE B SHARES (31.03)</td>
<td>UX (1.1069%)</td>
<td>MICEX (0.3068%)</td>
<td>42 (80.77%)</td>
<td>10 (19.23%)</td>
</tr>
</tbody>
</table>

Source: the author’s own calculation.
The lowest percentage of positive returns was recorded in two cases out of four for SSE B SHS index.

4.4. The analysis of the calendar effect – 4th day of the month

The results of testing the zero hypothesis with the use of average rates of return for two different populations permit to draw the following conclusions (see also Table 4):

a) Close – close rates of return

\( H^z_0 \): DJTA (0.0209), SET (0.0027) and XU 100 (0.0046), \( p^z_0 \): BUX (0.0800), MERVAL (0.0657) and SSE COMPOSITE (0.0971).

\( H^K_0 \): SET (0.0015), SSE COMPOSITE (0.0054) and XU 100 (0.0056).

b) Overnight rates of return

\( H^z_0 \): AMEX (0.0422), PSI 20 (0.0446) and SET (0.0078), \( p^z_0 \): FTSE MIB (0.0879), MERVAL (0.0600), MICEX (0.0581), XU 100 (0.0682) and WIG (0.0560).

\( H^K_0 \): SET (0.0064), SSE B SHARES (0.0182) and SSE COMPOSITE (0.0295), \( p^K_0 \): CAC 40 (0.0707).

c) Open-Open rates of return

\( H^z_0 \): DJTA (0.0209), IPC (0.0443), SET (0.0001), SSE B SHARES (0.0116), SSE COMPOSITE (0.0312) and TAIEX (0.0409), \( p^z_0 \): AEX (0.0704) and WIG (0.0928).

\( H^K_0 \): BOVESPA (0.0190), NASDAQ 100 (0.0155), PSEI (0.0149), SET (0.0001), SSE B SHARES (0.0023) and SSE COMPOSITE (0.0026), \( p^K_0 \): DJTA (0.0643) and DJUA (0.0592).

d) Open-Close rates of return

\( H^z_0 \): DJTA (0.0235), JCI (0.0147), KOSPI (0.0205) and SAX (0.0346), \( p^z_0 \): SET (0.0617).

\( H^K_0 \): UX (0.0276), \( p^K_0 \): DJUA (0.0908), SET (0.0934) and SMI (0.0771).

Table 4. Selected statistics of the rates of return for sessions falling on the 4th day of the month

<table>
<thead>
<tr>
<th></th>
<th>Highest percentage of positive returns</th>
<th>Lowest percentage of positive returns</th>
<th>The highest one-session average rate of return</th>
<th>The lowest one-session average rate of return</th>
<th>The number of indexes for which the positive one-session average rates of return were observed</th>
<th>The number of indexes for which the negative one-session average rates of return were observed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close-close</td>
<td>SSE COMPOSITE (61.29)</td>
<td>UX (44.97)</td>
<td>XU100 (0.6912%)</td>
<td>MERV -0.0839%</td>
<td>46 (88.46%)</td>
<td>6 (11.54%)</td>
</tr>
<tr>
<td>Overnight</td>
<td>MERVAL (65.37)</td>
<td>AMEX (48.94%)</td>
<td>XU 100 (0.3485%)</td>
<td>MERV -0.0366%</td>
<td>37 (71.15%)</td>
<td>15 (28.85%)</td>
</tr>
</tbody>
</table>
The highest percentage of positive returns, in two cases out of four was registered for MERV AL index, as well as the lowest one-session average rate of return. In turn, the lowest percentage of positive returns was observed in two out of four cases for UX index and the highest one-session average rate of return in three out of four cases for XU 100 index.

4.5. The analysis of the calendar effect – the 13th day of the month falling on Friday vs other Fridays with the use of close-close rates of return

The results of testing the zero hypothesis with the use of average rates of return for two different populations permit to draw the following conclusion:

\[ H_0^z: \text{ALL ORDINARIES} (0.0378), \text{FTSE 250} (0.0197), \text{MICEX} (0.0070), \text{NIKKEI} (0.0096), \text{PSEI} (0.0413), \text{STRAIT TIMES} (0.0468) \text{and WIG} (0.0273), p^z_0: \text{HANG SENG} (0.0603), \text{OSE} (0.0870), \text{SENSEX} (0.0612) \text{and XU 100} (0.0987). \]

\[ H_0^{KW}: \text{ALL ORDINARIES} (0.0076), \text{FTSE 250} (0.0221), \text{MICEX} (0.0054), \text{NIKKEI} (0.0094), \text{PSEI} (0.0127), \text{SENSEX} (0.0126) \text{and XU 100} (0.0206), p^{KW}_0: \text{DJTA} (0.0821), \text{OSE} (0.0694) \text{and WIG} (0.0571). \]

The highest percentage of positive rates of return equal to 60.00% was registered for PSI and the lowest one equal to 33.33% for two indices: MICEX and UX. The number of percentage rates of return higher than 50% amounted to 9. The highest one–session average rate of return equal to 0.6645% was registered for MERV AL and the lowest equal to −1.1028% for MICEX. The positive one-session rates of return were observed for 16 indices (30.77%) and negative for 36 indices (69.23%) – see Table 5.
Table 5. Percentage of positive rates of return, one-session average rates of return for sessions falling on Friday the 13th and for other sessions falling on Friday.

Shaded boxes indicate the equity indices for which the difference between the average rates of return in two populations of rates of return was statistically significant regarding equality of two average rates of return.

<table>
<thead>
<tr>
<th>Index</th>
<th>Percentage of positive rates of return Friday the 13th</th>
<th>One-session average rate of return Friday the 13th</th>
<th>One-session average rate of return all other Fridays</th>
<th>Index</th>
<th>Percentage of positive rates of return Friday the 13th</th>
<th>One-session average rate of return Friday the 13th</th>
<th>One-session average rate of return all other Fridays</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEX</td>
<td>43.860%</td>
<td>0.0526%</td>
<td>0.0232%</td>
<td>NASDAQ 100</td>
<td>53.846%</td>
<td>0.1226%</td>
<td>0.0885%</td>
</tr>
<tr>
<td>ALL ORD</td>
<td>35.484%</td>
<td>–0.2023%</td>
<td>0.0727%</td>
<td>NASDAQ COMP</td>
<td>50.000%</td>
<td>–0.0995%</td>
<td>0.0810%</td>
</tr>
<tr>
<td>AMEX</td>
<td>48.649%</td>
<td>0.1227%</td>
<td>0.0109%</td>
<td>NIKKEI</td>
<td>48.696%</td>
<td>–0.1449%</td>
<td>0.0674%</td>
</tr>
<tr>
<td>ATHEX COM</td>
<td>41.667%</td>
<td>0.0968%</td>
<td>0.0841%</td>
<td>OMX STOCKHOLM</td>
<td>53.061%</td>
<td>0.0135%</td>
<td>0.0606%</td>
</tr>
<tr>
<td>BEL 20</td>
<td>51.163%</td>
<td>–0.8756%</td>
<td>0.0308%</td>
<td>OSE</td>
<td>43.396%</td>
<td>–0.0772%</td>
<td>0.0905%</td>
</tr>
<tr>
<td>BOVESPA</td>
<td>45.238%</td>
<td>–0.8756%</td>
<td>0.1264%</td>
<td>PX</td>
<td>42.500%</td>
<td>–0.1779%</td>
<td>0.0844%</td>
</tr>
<tr>
<td>BUX</td>
<td>38.636%</td>
<td>–0.5013%</td>
<td>0.0257%</td>
<td>PSEI</td>
<td>40.000%</td>
<td>–0.2135%</td>
<td>0.1385%</td>
</tr>
<tr>
<td>CAC40</td>
<td>52.439%</td>
<td>0.0731%</td>
<td>0.0820%</td>
<td>PS20</td>
<td>60.000%</td>
<td>–0.0411%</td>
<td>0.0119%</td>
</tr>
<tr>
<td>DAX</td>
<td>48.387%</td>
<td>–0.1047%</td>
<td>0.0531%</td>
<td>RTS</td>
<td>38.889%</td>
<td>–0.5863%</td>
<td>0.1620%</td>
</tr>
<tr>
<td>DJIA</td>
<td>44.444%</td>
<td>–0.0016%</td>
<td>0.0291%</td>
<td>SAX</td>
<td>51.515%</td>
<td>0.1750%</td>
<td>0.0483%</td>
</tr>
<tr>
<td>DJTA</td>
<td>45.263%</td>
<td>–0.0449%</td>
<td>0.0651%</td>
<td>SENSEX</td>
<td>39.286%</td>
<td>–0.2324%</td>
<td>0.0769%</td>
</tr>
<tr>
<td>DJUA</td>
<td>45.263%</td>
<td>0.1168%</td>
<td>0.0338%</td>
<td>SET</td>
<td>36.957%</td>
<td>–0.0716%</td>
<td>0.0388%</td>
</tr>
<tr>
<td>EOE</td>
<td>43.243%</td>
<td>0.1093%</td>
<td>–0.0118%</td>
<td>SMI</td>
<td>44.681%</td>
<td>–0.0239%</td>
<td>0.0348%</td>
</tr>
<tr>
<td>FTSE 250</td>
<td>46.154%</td>
<td>–0.1748%</td>
<td>0.0730%</td>
<td>SOFIX</td>
<td>53.846%</td>
<td>–0.0239%</td>
<td>0.0360%</td>
</tr>
<tr>
<td>FTSE MIB</td>
<td>46.667%</td>
<td>–0.0403%</td>
<td>0.0134%</td>
<td>S&amp;P 500</td>
<td>46.875%</td>
<td>–0.0169%</td>
<td>0.0342%</td>
</tr>
<tr>
<td>HANG SENG</td>
<td>44.872%</td>
<td>–0.4819%</td>
<td>0.0487%</td>
<td>SP TSX COM</td>
<td>47.059%</td>
<td>–0.0299%</td>
<td>0.0387%</td>
</tr>
<tr>
<td>HEX</td>
<td>45.714%</td>
<td>–0.1376%</td>
<td>0.0884%</td>
<td>SSE B SHARES</td>
<td>40.625%</td>
<td>–0.1719%</td>
<td>0.0528%</td>
</tr>
<tr>
<td>IBEX</td>
<td>46.939%</td>
<td>0.0689%</td>
<td>0.0402%</td>
<td>SSE COMP</td>
<td>47.619%</td>
<td>–0.1285%</td>
<td>0.0516%</td>
</tr>
<tr>
<td>ICEX</td>
<td>46.939%</td>
<td>0.2003%</td>
<td>0.1037%</td>
<td>STRAIT TIMES</td>
<td>39.583%</td>
<td>–0.3322%</td>
<td>0.0594%</td>
</tr>
<tr>
<td>IPC</td>
<td>50.000%</td>
<td>0.1819%</td>
<td>0.1036%</td>
<td>TAIEX</td>
<td>39.583%</td>
<td>–0.3883%</td>
<td>0.0291%</td>
</tr>
<tr>
<td>IPSA</td>
<td>49.351%</td>
<td>0.0622%</td>
<td>0.1021%</td>
<td>TEC DAC</td>
<td>46.667%</td>
<td>–0.1323%</td>
<td>0.0477%</td>
</tr>
<tr>
<td>JCI</td>
<td>40.385%</td>
<td>–0.3382%</td>
<td>0.0884%</td>
<td>TSE 300</td>
<td>44.444%</td>
<td>0.0266%</td>
<td>0.0218%</td>
</tr>
<tr>
<td>KLCI</td>
<td>44.776%</td>
<td>–0.3347%</td>
<td>0.0702%</td>
<td>UK 100</td>
<td>51.852%</td>
<td>0.0144%</td>
<td>0.2630%</td>
</tr>
<tr>
<td>KOSPI</td>
<td>46.667%</td>
<td>–0.0526%</td>
<td>0.0378%</td>
<td>UX</td>
<td>33.333%</td>
<td>–0.5838%</td>
<td>–0.0151%</td>
</tr>
<tr>
<td>MERVAL</td>
<td>59.574%</td>
<td>0.6645%</td>
<td>0.1938%</td>
<td>WIG</td>
<td>41.860%</td>
<td>–0.5458%</td>
<td>0.1852%</td>
</tr>
<tr>
<td>MICEX</td>
<td>33.333%</td>
<td>–1.1028%</td>
<td>0.1605%</td>
<td>XU 100</td>
<td>46.667%</td>
<td>–0.0589%</td>
<td>–0.0151%</td>
</tr>
</tbody>
</table>

Source: the author’s own calculation.
The percentage of positive returns calculated for sessions falling on Friday the 13th was higher than 50% in 9 cases: BEL 20, CAC 40, MERVAL, NASDAQ 100, OMX STOCKHOLM, PSI 20, SAX, SOFIX, UK 100. The highest percentage was observed for PSI 20 (60.00%) and the lowest one for two indices: MICEX and UX (33.33%).

The one-session average rate of return for Friday the 13th was positive in the case of 16 indices: AEX, AMEX, ATHEX COMPOSITE, CAC 40, DJUA, EOE, IBEX, ICEX, IPC, IPSA, MERVAL, NASDAQ 100, OMX STOCKHOLM, SAX, TSE 300, UK 100. Just only in one case the one-session average rate of return for Friday the 13th was statistically different than the average rate of return for all other Fridays: ATHEX COMPOSITE.

In all other remaining cases (36), the one-session average rates of return for Friday the 13th were negative, but only for 7 of them, the difference between one-session average rates of return for Friday the 13th and one-session average rates of return for all the remaining Fridays were statistically significant: ALL ORDINARIES, FTSE 250, MICEX, NIKKEI, PSEI, STRAIT TIMES and WIG.

The one-session average rates of return for Friday the 13th were higher than the one-session average rates of return for all the remaining Fridays in 12 cases (AEX, ALL ORDINAREIS, AMEX, DJUA, EOE, IBEX, ICEX, IPC, MERVAL, NASDAQ 100, SAX, TSE 300) but in none of these cases the difference between the average rates of return in two analyzed populations were not statistically important.

4.6. The analysis of the calendar effect – 13th day of the month falling on Tuesday vs other Tuesdays (close-close rates of return)

\[ H_0^*: \text{AEX (0.0404), ATHEX COMPOSITE (0.0347), BEL 20 (0.0203), EOE (0.0103), IBEX (0.0386), PX (0.0170) and UX (0.0121), } \]

\[ p_0^*: \text{FTSE 250 (0.0697), FTSE MIB (0.0767), MERVAL (0.0502), OMX STOCKHOLM (0.0620) and SET (0.0716).} \]

\[ H_0^{KW}: \text{BEL 20 (0.0158), EOE (0.0249), DJUA (0.0317), IBEX (0.0111), PX (0.0028), TEC DAX (0.0238) and UX (0.0194), } \]

\[ p_0^{KW}: \text{ATHEX COMPOSITE (0.0757), FTSE MIB (0.0839), HEX (0.0506), OMX STOCKHOLM (0.0512), PSI 20 (0.0710), SET (0.0902), SSE B SHARES (0.0950).} \]
4.7. The correlation coefficients for the rates of return (close-close) falling on Friday the 13th

The correlation coefficients for the rates of return (close-close) falling on Friday the 13th were calculated for 52 equity indices. It means that the calculation was derived for \( \binom{52}{2} = \frac{52!}{2!50!} = \frac{51 \cdot 52}{2} = 1360 \) pairs of indices.

The highest value of the correlation coefficient equal to 0.9999 was registered for AEX/EOE and the lowest one equal to –0.6996 for AMEX/SOFIX. The positive value of the correlation coefficient was observed for 1064 pairs (80.24%) and for 262 pairs (19.76%) resulted to be negative.

**Table 6. Number of positive and negative correlation coefficients for each of analyzed indexes.**

<table>
<thead>
<tr>
<th>Index</th>
<th>Number of positive correlation coefficients</th>
<th>Number of negative correlation coefficients</th>
<th>Index</th>
<th>Number of positive correlation coefficients</th>
<th>Number of negative correlation coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEX – Holland</td>
<td>45</td>
<td>6</td>
<td>ICEX–Iceland</td>
<td>30</td>
<td>21</td>
</tr>
<tr>
<td>ALL ORDINARIES – Australia</td>
<td>35</td>
<td>16</td>
<td>IPC–Mexico</td>
<td>36</td>
<td>15</td>
</tr>
<tr>
<td>AMEX– USA</td>
<td>35</td>
<td>16</td>
<td>IPSA – Chile</td>
<td>47</td>
<td>4</td>
</tr>
<tr>
<td>ATHEX COM – Greece</td>
<td>46</td>
<td>5</td>
<td>JCI–Indonesia</td>
<td>35</td>
<td>16</td>
</tr>
<tr>
<td>BEL 20 – Belgium</td>
<td>47</td>
<td>4</td>
<td>KLCI–Malaysia</td>
<td>42</td>
<td>9</td>
</tr>
<tr>
<td>BOVESPA – Brasil</td>
<td>36</td>
<td>15</td>
<td>KOSPI – Korea</td>
<td>35</td>
<td>16</td>
</tr>
<tr>
<td>BUX – Hungary</td>
<td>46</td>
<td>5</td>
<td>MERVAL – Argentina</td>
<td>43</td>
<td>8</td>
</tr>
<tr>
<td>CAC40 – France</td>
<td>47</td>
<td>4</td>
<td>MICEX – Russia</td>
<td>45</td>
<td>6</td>
</tr>
<tr>
<td>DAX – Germany</td>
<td>48</td>
<td>3</td>
<td>NASDAQ 100 – USA</td>
<td>36</td>
<td>15</td>
</tr>
<tr>
<td>DJIA – USA</td>
<td>35</td>
<td>16</td>
<td>NASDAQ COMP. – USA</td>
<td>37</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index</td>
<td>Number of positive correlation coefficients</td>
<td>Number of negative correlation coefficients</td>
<td>Index</td>
<td>Number of positive correlation coefficients</td>
<td>Number of negative correlation coefficients</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------</td>
<td>-------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>DJTA – USA</td>
<td>37</td>
<td>14</td>
<td>NIKKEI – Japan</td>
<td>38</td>
<td>13</td>
</tr>
<tr>
<td>DJUA – USA</td>
<td>28</td>
<td>23</td>
<td>OMX STOCKHOLM – Sweden</td>
<td>49</td>
<td>2</td>
</tr>
<tr>
<td>EOE – Holland</td>
<td>47</td>
<td>4</td>
<td>OSE – Norway</td>
<td>50</td>
<td>1</td>
</tr>
<tr>
<td>FTSE 250 – Great Britain</td>
<td>48</td>
<td>3</td>
<td>PX – Czech Republic</td>
<td>37</td>
<td>14</td>
</tr>
<tr>
<td>FTSE MIB – Italy</td>
<td>46</td>
<td>5</td>
<td>PSEI – Philippines</td>
<td>27</td>
<td>24</td>
</tr>
<tr>
<td>HANG SENG – Hong Kong</td>
<td>38</td>
<td>13</td>
<td>PSI20 – Portugal</td>
<td>49</td>
<td>2</td>
</tr>
<tr>
<td>HEX – Finland</td>
<td>48</td>
<td>3</td>
<td>RTS – Russia</td>
<td>49</td>
<td>2</td>
</tr>
<tr>
<td>IBEX – Spain</td>
<td>48</td>
<td>3</td>
<td>SAX – Slovakia</td>
<td>38</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: the author’s own calculation.

The highest value of positive correlation coefficients was registered for OSE (50), and the lowest one for SOFIX index (23) – see Table 6. The number of positive correlation coefficients higher or equal to 45 was observed for the following indexes: AEX (45), ATHEX COMPOSITE (46), BEL 20 (47), BUX (46), CAC 40 (47), DAX (48), EOE (47), FTSE 250 (48), FTSE MIB (46), HEX (48), IBEX (48), IPSA (47), MICEX (45), OMX STOCKHOLM (49), OSE (50), PSI 20 (49), RTS (49), SENSEX (45), SMI (45), TEC DAX (48), UK 100 (49) and WIG (47).

The number of correlation coefficients higher than 0.6; 0.7, 0.8 and 0.9 was equal to, respectively: 122 (9.20%), 82 (6.18%), 38 (2.87%) and 9 (0.68%). The correlation coefficient higher than 0.8 was observed for the following pairs of indices: AEX/BEL 20 (0.8971), AEX/CAC 40 (0.8490), AEX/DAX (0.8224), AEX/EOE (0.9999), AEX/UK 100 (0.8848), AMEX/DJIA (0.9861), AMEX/DJTA (0.8643), AMEX/NASDAQ COMPOSITE (0.8387), AMEX/S&P 500 (0.9732), AMEX/SP TSX COMPOSITE (0.8518), AMEX/TSE 300 (0.8452), BEL 20/CAC 40 (0.8876), BEL 20/DAX (0.8783), BEL 20/EOE (0.9256), BEL 20/UK 100 (0.8705), CAC 40/EOE (0.8992), CAC40/FTSE MIB (0.8718), CAC 40/TEC DAX (0.8055), DAX/EOE (0.9042), DAX/FTSE MIB (0.8122), DAX/SMI (0.8325), DAX/TEC DAX (0.8326), DJIA/NASDAQ 100 (0.8185), DJIA/S&P 500 (0.9506), DJIA/SP TSX COMPOSITE (0.8114), DJIA/TSE.
300 (0.8349), DJTA/S&P 500 (0.8459), DJTA/TSE 300 (0.8087), EOE/UK 100 (0.9060), FTSE MIB/IBEX (0.8288), MICEX/RTS (0.8121), NASDAQ 100/NASDAQ COMPOSITE (0.9710), NASDAQ 100/S&P 500 (0.8700), OMX/TEC DAX (0.8560), S&P 500/SP TSX COMPOSITE (0.8306), S&P 500/TSE 300 (0.8493), SP TSX COMPOSITE/TSE 300 (0.8669), SSE B SHARES/SSE COMPOSITE (0.9159).

The number of correlation coefficients lower than –0.3; –0.4 and –0.5 was equal to, respectively: 48 (3.62%), 17 (1.28%) and 12 (0.90%). The correlation coefficients lower than –0.5 was observed for the following pairs of indices: ALL ORDINARIES/AMEX (–0.5329), ALL ORDINARIES/DJUA (–0.5949), AMEX/SOFIX (–0.6996), DJUA/SOFIX (–0.6778), DJTA/SOFIX (–0.5663), DJUA/SOFIX (–0.6492), IPC/SOFIX (–0.5606), NASDAQ 100/SOFIX (–0.5196), NASDAQ COMPOSITE/SOFIX (–0.5783), SOFIX/S&P 500 (–0.6602), SOFIX/SP TSX COMPOSITE (–0.5211), SOFIX/TSE 300 (–0.5043). It is worth mentioning that 10 cases out of 12 regarded the SOFIX index.

**Figure 1. Distribution of correlation coefficients frequency**

![Figure 1. Distribution of correlation coefficients frequency](image)

Source: the author's own calculation.
5. Conclusion

The calculations presented in this paper indicate the presence of the unfortunate days effect – the results are presented in Table 7 and 8.

Table 7. Number of the unfortunate day effects (results of Kruskal-Wallis test in the brackets)

<table>
<thead>
<tr>
<th>Type of rate of return</th>
<th>13th vs all other sessions</th>
<th>Friday 13th vs all other sessions</th>
<th>Tuesday 13th vs all other sessions</th>
<th>4th vs all other sessions</th>
<th>Friday 13th vs Fridays</th>
<th>Tuesday 13th vs Tuesdays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close-close</td>
<td>2 (8)</td>
<td>8 (3)</td>
<td>2 (8)</td>
<td>3 (3)</td>
<td>7 (7)</td>
<td>7 (7)</td>
</tr>
<tr>
<td>Overnight</td>
<td>3 (1)</td>
<td>5 (4)</td>
<td>5 (3)</td>
<td>3 (3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open-open</td>
<td>5 (4)</td>
<td>3 (4)</td>
<td>2 (2)</td>
<td>6 (6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open-close</td>
<td>0 (8)</td>
<td>6 (4)</td>
<td>5 (10)</td>
<td>5 (1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: the author’s own calculation.

Table 8. Index names for which null hypotheses were rejected with the use of both statistics, z and H

<table>
<thead>
<tr>
<th>Type of rate of return</th>
<th>13th vs all other sessions</th>
<th>Friday 13th vs all other sessions</th>
<th>Tuesday 13th vs all other sessions</th>
<th>4th vs all other sessions</th>
<th>Friday 13th vs Fridays</th>
<th>Tuesday 13th vs Tuesdays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close-close</td>
<td>HANG SENG</td>
<td>HANG SENG</td>
<td>BUX, EOE</td>
<td>SET</td>
<td>ALL ORDINARIES, FTSE 250, MICEX, NIKKEI, PSEI, SENSEX</td>
<td>BEL 20, EOE, IBEX, PX, UX</td>
</tr>
<tr>
<td>Overnight</td>
<td>SET</td>
<td>OSE, SET</td>
<td>DJTA, DJU, SET</td>
<td>SET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open-open</td>
<td>AEX</td>
<td>ALL ORDINARIES, OMX STOCKHOLM</td>
<td>SET, SSE B SHARES, SSE COMPOSITE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open-close</td>
<td>BEL 20, EOE, UX</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: the author’s own calculation.

The effect of the 13th day of the month was observed in two Asian countries (Hong Kong and Thailand) and one European (Holland). The same result was achieved for 13th and Friday (Hong Kong, Thailand and Norway). For close – close returns, both
anomalies occurred in Hong Kong, and in the case of overnight returns – in Thailand. In turn, the 13th day of the month and Tuesday was registered on the following continents: Australia, Asia (Thailand), Europe (Hungary, the Netherlands, Sweden, Belgium and Ukraine), North America (the USA) and also in the largest number of countries (8). For the EOE index this effect was observed for close-close as well as for open-close rates of return. It should be mentioned that the 13th and Tuesday effect was not registered on the Spanish stock market. The calendar effect of the 4th day of the month was recorded only in Asian countries (Thailand and China). In Thailand, it was registered for the following rates of return: close-close, overnight and open-open and in China only for the open-close rates of return. All of the analyzed calendar effects occurred on the Thai stock exchange for overnight returns. On the other hand, the effects of the 13th day of the month and the 13th day of the month and Friday for close-close rates of return were observed only in Hong Kong.

The effect of the 13th day of the month (vs. the rates of return for other Fridays) was registered on 3 continents: Asia (Japan, India and the Philippines), Europe (Great Britain, Russia) and Australia. In turn, the calendar effect on 13th day of the month and Tuesday (vs. the rates of return of other Tuesdays) was present only on the European stock exchanges: Belgian, Dutch, Czech, Ukrainian and Spanish ones.

The main limitation of this research is the price range of data gained from the Reuters data source as well as the unequal intervals of observations for different equity indices. The outcome may be regarded as part of the ongoing discussions on the hypothesis of financial markets efficiency, which was introduced by Fama36. The results obtained in the paper regarding the Friday the 13th effect for the following equity indexes: ALL ORDINARIES, FTSE 250, MICEX, NIKKEI, PSEI, STRAIT TIMES and WIG are consistent with those of Kolb and Rodriguez37, i.e. the results do not support the outcomes reported by Agrawal and Tandon38, Coutts39 and Lucey40. Further research on the occurrence of “the unfortunate dates effect” in the financial markets should cover the currency and commodity market.

In further research, the problem of the strength of the analyzed calendar effects on individual exchanges may also be raised.

Bibliography


The key characteristic of private equity finance is that investors hold their investments only for a limited period of time. The key goal of VC funds is to grow the company to a point where it can be sold at a price that far exceeds the amount of capital invested. This process is called an exit or divestment. There are three basic types of exits: going public, being acquired by a larger corporation, a sale to a third-party investor.

It is a widely believed and accepted proposition in private equity literature that the initial public offering of a private equity portfolio company is the most successful and profitable exit opportunity. However, according to the few sources of literature, public offerings are not the preferred divestment type for venture capital firms. Going public is one of the most critical decisions in the lifecycle of a firm. This is not easy, as the process is very comprehensive and complex. Hence, a lot of considerations should be taken into account. Because every investee firm is different, a development plan to achieve a successful exit takes into consideration a number of macroeconomic and microeconomic factors. Moreover, several advantages and disadvantages of exit through an IPO could be indicated. The objective of this paper is to show the success and profitability of going public by VC funds. The VC’s exit type as a way of cashing out on its investment in a portfolio company is a consequence of the exit strategy, which means the plan for generating profits for owners and investors of a company. While an IPO is the most spectacular and visible form of exit, it is not the most common one, as historically in the US it was, but still in Europe it has not been yet. There will be both literature and statistical data coming from different studies and reports used in this research.
Introduction

The key goal of VC funds is to grow the company to a point where it can be sold at a price that far exceeds the amount of capital invested. This process is called an exit or divestment. The above indicated goal is not easy and approximately one-third of portfolio companies fail. This means that out of a portfolio of 10 investments, the average venture results are as following1:

- One or two will collapse through bad management or bad luck;
- Three or four will underperform badly so that they just hang on by the tips of their fingers;
- A couple will perform just above expectations;
- One or perhaps two will be real stars.

A venture capitalist must liquidate the investment and distribute proceeds to investors within the predefined time of the fund. From the point of view of the venture capitalist, it represents a long-term and quite illiquid investment for many years. Since most of these firms initially do not earn positive cash flows, the exit from the venture is the primary way for the venture capitalist to realize a positive return on the investment2.

As the process of private equity investment consists of three main stages: fund-raising, investing and exiting, which are interrelated, the reverse mechanism is observed. This means that the exit stage has a feedback effect on the fund-raising and investing phases3.

When a venture-backed company exits the portfolio, the VC distributes the profits to the fund’s investors and eventually leaves the portfolio company’s board of

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Keywords: Venture Capital, corporate finance and governance, financial markets, financial instruments, value of firms, capital and ownership structure

JEL Codes: G24 G34 D53 G23 G32
directors. That is why the choice among exit options may have important distributional consequences between the entrepreneur and the venture capitalist. The fund ends once all the investments of a particular fund have been exited and the profits have been distributed. In many cases, the institutional investors reinvest the earnings into the new funds and the process begins anew.

It is a widely believed and accepted proposition in private equity literature that an initial public offering of a private equity portfolio company is the most successful and profitable exit opportunity. However, according to the few sources of literature, public offerings are not the preferred divestment route for venture capital firms.

The purpose of this paper is to review a wide body of research relating to the venture capital exit route and to indicate the most popular forms of divestment. The main focus will be concentrated on an IPO as a type of exit. In undertaking such a task, it is important to provide answers to the following questions concentrating on the exit process management:

1. What kind of exit do VC funds prefer?
2. What are the positive and negative aspects of an exit by IPO?
3. Is an IPO really the most successful and profitable exit opportunity?
4. Which factors are the key decision drivers regarding the choice of an exit route?

This article is divided into 5 sections beyond the Introduction and Conclusion. The paper is structured as follows.

In Section 1 the definitions and differences between venture capital and private equity are developed. The framework and types of exits in theory and practice and a venture capitalist’s involvement on the exit choice are gathered in Section 2. Section 3 is dedicated for details of initial public offering as a kind of a VC type of exit. In section 4 underpricing of venture-backed companies and control after exit is indicated. The most common type of exit in the USA, Europe and Poland by highlighting a number of specificities of these markets are described in Section 5. The conclusions are included in the last Section together with indicating possible directions for future research.

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1. Venture Capital versus Private Equity

Both in theory and practice, even sometimes in statistical data, there are two terms that are used interchangeably: “venture capital” and “private equity”. It is important to distinguish between these two industry terms.

According to the European Venture Capital Association (EVCA)\(^6\), private equity is a form of equity investment into private companies not listed on the stock exchange. It is a medium to long-term investment, characterized by active ownership. Private equity builds better businesses by strengthening management expertise, delivering operational improvements and helping companies to access new markets. While venture capital is a type of private equity focused on start-up companies, venture capital funds back entrepreneurs with innovative ideas for a product or service, who need investment and expert help in growing their companies.

Similar definitions are used by the Polish Private Equity Association (PSIK)\(^7\), which describes venture capital as a professional equity co-invested with the entrepreneur to fund an early-stage (seed and start-up) or expansion venture. In this specific high-risk investment, the investors expect higher than average returns. However, according to the PSIK, private equity provides equity capital to enterprises that are not quoted on a stock market, this association stipulates that private equity can be used for different reasons:

- to develop new products and technologies;
- to expand working capital, to make acquisitions;
- to strengthen a company’s balance sheet;
- to resolve ownership and management issues.

The National Venture Capital Association (NVCA) defines venture capital as focusing on investments in new companies with high growth potential and accompanying high risk and private equity as investments in non-public companies, usually specified as being made up of venture capital funds and buyout funds. The NVCA uses in its reports the following definition\(^8\):

\[
\text{Private Equity} = \text{Venture Capital} + \text{Buyout/Mezzanine}
\]

In this sense, venture capital is regarded as a subset of private equity, referring more to investments made during the launch stages of a business. The connotation differs depending on a region and country, which has a historical background. North


\(^8\) See for example NVCA Yearbook 2016, pp. 62, 92, 95.
American investors used to prefer investing in early-stage firms; hence, their investments were increasingly regarded as venture capital (see the stages of investment in the US in Figure 1 below).

**Figure 1. Stages of investment of VC funds in the USA**

![Figure 1. Stages of investment of VC funds in the USA](image)

Source: *Emerging best practices for building the next generation of venture-backed leadership*, Spencer Stuart and NVCA 2010 Study, p. 8.

Comparatively, European investors historically pursued later-stage expansion deals and consequently, they preferred the term private equity. This is the basic reason for which these two terms and their definitions differ according to regional perceptions (see Figure 2 below)9.

**Figure 2. The spectrum of venture capital and private equity in different places.**

![Figure 2. The spectrum of venture capital and private equity in different places.](image)


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9 In this article both terms venture capital (VC) and private equity (PE) will be used alternatively depending on the region.
Another research made by J.R. Ritter shows that growth capital-backed IPOs are IPOs with a financial sponsor that, unlike a buyout-sponsored deal, typically owns far less than 90% of the equity prior to the IPO. Furthermore, many growth capital-backed IPOs have debt in their capital structure. The main criteria for classifying a financial sponsor as growth capital rather than venture capital is whether the company is investing in tangible assets or intangibles, which is highly correlated with the industry of the company. If the company is growing via acquisitions, it would generally be categorized as growth capital-backed rather than venture-backed. The data is shown in the table below.

### Table 1. VC-backed, growth capital-backed, and buyout-backed IPOs, 1980–2015

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of IPOs</th>
<th>Financial sponsor-backed</th>
<th>VC-backed</th>
<th>Growth capital-backed</th>
<th>Buyout-backed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>1980–1989</td>
<td>2044</td>
<td>653</td>
<td>32%</td>
<td>440</td>
<td>22%</td>
</tr>
<tr>
<td>1990–1998</td>
<td>3613</td>
<td>1676</td>
<td>46%</td>
<td>1065</td>
<td>29%</td>
</tr>
<tr>
<td>1999–2000</td>
<td>858</td>
<td>580</td>
<td>67%</td>
<td>498</td>
<td>58%</td>
</tr>
<tr>
<td>2001–2015</td>
<td>1664</td>
<td>1218</td>
<td>73%</td>
<td>662</td>
<td>40%</td>
</tr>
<tr>
<td>1980–2015</td>
<td>8178</td>
<td>4127</td>
<td>50%</td>
<td>2665</td>
<td>33%</td>
</tr>
</tbody>
</table>


Although in many studies the differences between venture capital and private equity are emphasized, several use these segments of market interchangeably. The main scarcity of available statistic data appears to be the reason for that.

### 2. The Framework and Types of Exits in Theory and Practice

VC investors are active, value-added investors that bring not only capital to the table, but knowledge, skills, and a network of legal, accounting, investment banking, marketing, and other contacts that are useful to an enterprise. Hence, VCs will exit from an investment when the projected marginal value added as a result of the VCs’ efforts (all things that VCs can do to add value to an enterprise), at any given measurement interval (points in time at which the VC formally or informally reassesses its continued commitment to an investment), is less than the projected cost (all the direct and overhead costs associated with creating value, the costs of monitoring and
periodically re-evaluating the investment, as well as the opportunity cost associated with alternative deployments of capital)\textsuperscript{10}.

The framework for the exits can differ among the funds but typically it consists of ten steps (see the table below).

<table>
<thead>
<tr>
<th>Step</th>
<th>Characteristic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Identification of an exit opportunity</td>
</tr>
<tr>
<td>2</td>
<td>Evaluation of a portfolio firm and exit routes</td>
</tr>
<tr>
<td>3</td>
<td>Designing the exit process and mandating advisers</td>
</tr>
<tr>
<td>4</td>
<td>Assigning roles and responsibilities, negotiating incentives</td>
</tr>
<tr>
<td>5</td>
<td>Preparation before the launch of the exit process</td>
</tr>
<tr>
<td>6</td>
<td>Launch of the exit process</td>
</tr>
<tr>
<td>7</td>
<td>Conduct of the exit process, negotiations with bidders</td>
</tr>
<tr>
<td>8</td>
<td>Evaluation of the exit options and offers</td>
</tr>
<tr>
<td>9</td>
<td>Transaction closing</td>
</tr>
<tr>
<td>10</td>
<td>Ex-post review</td>
</tr>
</tbody>
</table>


There can be indicated three basic types of exits: going public, being acquired by a larger corporation or a sale to a third-party investor. Apart from these three basic ways out of an investment for VCs, the term “commercial collapse” is being taken into account as one of the kinds of exits, although it is not a way for a beneficial realization of the investment. However, in theory and practice there are five principal types of VC exits\textsuperscript{11}:

- an initial public offering (IPO), in which a significant portion of the firm is sold into the public market;
- an acquisition exit, in which the entire firm is bought by a third party;
- a secondary sale, in which only the VC's shares are sold to a third party (again, typically a strategic acquirer);
- a buyback, in which the VC’s shares are repurchased by the entrepreneurial firm;
- a write-off, in which the VC walks away from the investment.


The National Venture Capital Association (NVCA) shows only three types of exit routes: acquisition, IPO and buyout. As European market is more diversified according to the European Venture Capital Association (EVCA), there are the following types of divestments:\textsuperscript{12}:

- divestment by trade sale – the sale of company shares to industrial investors;
- divestment by public offering:
  - divestment on flotation (IPO) – the sale or distribution of a company’s shares to the public for the first time by listing the company on the stock exchange;
  - sale of the quoted equity – the sale of quoted shares only if connected to a former private equity investment, e.g. the sale of quoted shares after a lock-up period;
- divestment by write-off – the total or partial write-down of a portfolio company’s value to zero or a symbolic amount (the sale for a nominal amount) with the consequent exit from the company or reduction of the shares owned; the value of the investment is eliminated and the return to investors is a full or partial loss;
- repayment of silent partnerships – a silent partnership is a type of mezzanine financing instrument. It is similar to a long-term bank loan but, in contrast to a loan, a silent partnership is subject to a subordination clause, so that in the event of insolvency all other creditors are paid before the silent partner. The company has to repay the partnership and has to pay interest and possibly a profit-related compensation. The subordination clause gives the capital the status of equity despite its loan character. This financing instrument is frequently used in Germany;
- repayment of principal loans – if a private equity firm provided loans or purchased preference shares in the company at the time of the investment, then their repayment according to the amortization schedule represents a decrease of the financial claim of the firm into the company, and hence a divestment;
- sale to another private equity house – the sale of company shares to another direct private equity firm;
- sale to a financial institution – the sale of company shares to banks, insurance companies, pension funds, endowments, foundations and other asset managers other than private;
- sale to the management;
- divestment by other means.

If private equity investors cannot foresee that a company will be mature enough to go public or sell to the third party towards the end of the funds’ life, they are

unlikely to invest in the business in the first place\textsuperscript{13}. According to A. Schwienbacher, the effect of board representation on the exit choice is not significant\textsuperscript{14}.

An exit may be full or partial:\textsuperscript{15}

- A full exit for an IPO involves a sale of all of the venture capitalists’ holdings within one year of the IPO; a partial exit involves the sale of only part of the venture capitalists’ holdings within that period.
- A full acquisition exit involves the sale of the entire firm for cash; in a partial acquisition exit, the venture capitalist receives (often illiquid) shares in the acquirer firm instead of cash.
- In the case of a secondary sale or a buyback exit (in which the entrepreneur buys out the venture capitalist), a partial exit entails the sale of only part of the venture capitalists’ holdings.
- A partial write-off involves a write down of the investment on its books.

In exiting their investments, VCs sometimes make a full exit (disposing of their entire interest in the investee firm), and sometimes make a partial exit (retaining at least part of their interest). The study conducted by D. J. Cumming and J. G. MacIntosh investigates the determinants of the choice between a full and a partial exit\textsuperscript{16}.

According to them, the key factor in driving this choice is the degree of information asymmetry between the selling VC and the purchaser(s) of the VC’s investment. If the information asymmetry is high, then the VC can maximize the overall proceeds of disposition by initially effecting a partial exit, because ownership retention constitutes a credible signal that the quality of the investee firm is high.

Because every investee firm is different, a development plan to achieve a successful exit takes into consideration a number of macroeconomic and microeconomic factors. Some of them, especially those related to macroeconomic trends (the economic cycle and anticipated growth rates, the nature of the industry, the cycle of financial markets, the costs of borrowing, and so on), are outside of the venture capitalist’s sphere of influence.

Still there are numbers of those factors which are subject to control of VC (business development, business expansion, and achievement of milestones and operational


goals, trends in profitability and sales, a competent and strong management team). For instance, to alleviate the costs associated with the IPO decision, firms often build their reputation by obtaining different types of quality certifications to signal their true value to the market. Some popular certification strategies include:\(^{17}\):

- employing a reputable auditor;
- associating with a venture capitalist with an established track record;
- hiring a well-known underwriter;
- attracting a strong institutional affiliation;
- recruiting a good quality management team.

Before venture capitalists invest, they plan for exit. This means that they select portfolio companies according to the preferred type of exits. On the other hand, there may be demand for specific modes of exits depending on the type of portfolio companies.

The ability to control the exit is crucial to the venture capitalist’s business model of short-term funding of nascent business opportunities. The exit\(^{18}\):

First, allows venture capitalists to reallocate funds and the nonfinancial contributions that accompany them to early stage companies.

Second, it allows fund investors to evaluate the quality of their venture capitalists and, if necessary, to reallocate their funds away from venture capital toward other investment vehicles or from less successful venture capitalists to more successful venture capitalists.

Finally, the credible threat of exit by venture capitalists may work to minimize the temptation toward self-dealing by the entrepreneurs who manage the venture-backed companies.

3. Initial Public Offering

An initial public offering (IPO) is a process of selling shares to members of the public for the first time. The decision to go public is one of the most critical decisions in the lifecycle of a firm.


Two types of shares can be sold at an IPO\(^\text{19}\): the primary equity (new shares sold to investors) and the secondary equity (shares owned by the original investors). Some IPOs consist of all primary equity with the original investors retaining their shares. Other ones are all secondary equity with no money raised for the company. Many IPOs appear as a combination of these two possibilities.

Typically, the VC will retain its shares at the date of the public offering, then selling shares into the market in the months or years following the IPO. However, the VC usually sells a small fraction of its shares at the time of the IPO. Alternatively, following the IPO, the VC may dispose of its investment by making a dividend of investee firm shares to the fund’s owners\(^\text{20}\).

The precise details of the process are long, tedious and complicated. The IPO process consists of the following stages\(^\text{21}\):

- Forming the IPO team;
- Preparing the company;
- Assembling the team;
- Signing a letter of intent with the underwriters;
- Beginning of the quiet period;
- Holding the organizational meeting;
- Preparing a preliminary registration statement (the first draft prospectus);
- Conducting the due diligence process – concurrently with the preparation of the preliminary registration statement;
- Filing the preliminary registration document with the SEC for examination;
- Preparing an amended registration statement;
- Distributing the preliminary prospectus (“red herring”);
- Marketing (“road shows”);
- Holding the due diligence meeting;
- Pricing, signing the underwriting agreement and having the registration statement declared effective;
- Selling the shares to the public and closing;
- Trading, stabilization and exercise of the underwriters’ option (“green shoe” option).

The decision of going public is not easy, as the process is very comprehensive and complex. Hence, a lot of considerations should be taken into account:


First, the business needs to identify the date when it wishes to float and then work backwards several months to identify the time when the whole process should start, which means that a great deal of planning is required.

Second, the effort that is required for preparation will take much of the attention of directors in the months prior to the event.

Third, putting the company’s shares on the public market now involves continuing regulatory burdens that are costly and heavy.

Forth, the sanctions that the market regulators may impose on the management and venture shareholders of the business that is considering the listing may involve shares being ‘locked up’ to prevent the market being swamped, so they will still be subject to detailed regulation.

Fifth, venture investors may be reluctant to give some of the warranties that are required to enable the listing to proceed smoothly.

Several advantages and disadvantages of the exit through an IPO could be indicated. Following numerous research, S. Povaly indicates many advantages:

- Potential for the highest price (as investors buying public shares in a company are prepared to pay a premium for liquidity higher than the control premium paid by purchasers in an acquisition exit);
- Favored by the management as the executives retain more managerial freedom and flexibility with a well-diversified shareholder base rather than with a large majority owner;
- Share participations or stock-option schemes can be offered as a complementary and highly effective form of employee incentives;
- Other stakeholders’ incentives such as customers, suppliers or strategic partners can be invited to acquire shares in the business to solidify commercial relationships;
- Publicity, reputation and image – IPOs are highly publicized processes so that the companies can benefit from it;
- Provoking M&A bids by potential M&A buyers as a credible IPO process signals a high quality to them; lower due diligence requirements in the interest of a quick transaction process could be a result;
- Retaining future upside potential – IPOs do not enable full immediate exits; however, a private equity investor is able to retain a stake in the business, sharing potential profits of future growth of the business;
- Source of funds for future investments or acquisitions when issuing primary shares while exiting (other exits do not provide new financing to the company).

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He emphasizes the disadvantages of exit via an IPO as well:\(^{23}\):

- High transaction costs in comparison to other types of exit;
- Extensive preparation and high standards required, intense execution processes;
- Only a partial immediate exit because of lockup conditions; a continued shareholding in a public company carries the risk of still having to monitor it;
- Risk of illiquid stock markets; to be able to sell substantial blocks of shares at attractive price levels, sufficient liquidity in the stock is necessary;
- Need to convince a large number of investors about the quality and future outlook of the business;
- High, often short-term-oriented, performance pressure due to continuous expectations by institutional investors can over time alter a previously longer-term-oriented management style to a strive for short-term goals, and thus limiting the management's flexibility in pursuing strategic objectives;
- Downturns in the company's stock prices can have a negative impact on the business, such as a loss of reputation with customers, suppliers and employees;
- High and comprehensive disclosure of commercially sensitive information, such as the divisional cost structure or operational data that might be used by competitors to the detriment of the company;
- Substantial risk attached to the process of withdrawal; companies that cancel IPOs might have severe problems accessing public capital markets again, as investors may be reluctant to re-consider an investment, presuming the company has withdrawn an IPO due to a fundamental business problem;
- Only for sizeable companies with an attractive projected growth profile as apart from the requirement of the company's business plan to credibly demonstrate a growth pattern and the ability to generate attractive returns for expansion capital, IPO exits typically require a minimum issue size, as otherwise institutional investors are unlikely to commit to transactions.

"The 2011 Global Venture Capital Survey" conducted jointly by Deloitte & Touche LLP and the National Venture Capital Association in the group of global venture capitalists indicates factors that create a healthy and vibrant IPO market (see the Table below).

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Table 3. Top 3 factors that create a healthy and vibrant IPO market

<table>
<thead>
<tr>
<th>Factors</th>
<th>Brazil</th>
<th>Canada</th>
<th>China</th>
<th>France</th>
<th>Germany</th>
<th>India</th>
<th>Israel</th>
<th>UK</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>The competitive investment banking community for an IPO</td>
<td>44</td>
<td>14</td>
<td>22</td>
<td>14</td>
<td>50</td>
<td>29</td>
<td>40</td>
<td>24</td>
<td>30</td>
</tr>
<tr>
<td>Healthy investor appetite for equity in public companies</td>
<td>94</td>
<td>77</td>
<td>75</td>
<td>93</td>
<td>92</td>
<td>90</td>
<td>70</td>
<td>84</td>
<td>81</td>
</tr>
<tr>
<td>Freely available capital</td>
<td>19</td>
<td>32</td>
<td>44</td>
<td>18</td>
<td>17</td>
<td>19</td>
<td>20</td>
<td>43</td>
<td>25</td>
</tr>
<tr>
<td>Ability to move capital out of a country</td>
<td>6</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>10</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Economic stability</td>
<td>69</td>
<td>45</td>
<td>58</td>
<td>43</td>
<td>25</td>
<td>52</td>
<td>40</td>
<td>68</td>
<td>52</td>
</tr>
<tr>
<td>Adequate stock analyst coverage</td>
<td>19</td>
<td>36</td>
<td>14</td>
<td>46</td>
<td>17</td>
<td>52</td>
<td>10</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>Companies with leading edge technologies</td>
<td>19</td>
<td>50</td>
<td>28</td>
<td>36</td>
<td>67</td>
<td>0</td>
<td>40</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>Companies that appeal to the general public and mainstream media</td>
<td>6</td>
<td>23</td>
<td>14</td>
<td>29</td>
<td>33</td>
<td>38</td>
<td>50</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Easier reporting for newly public companies</td>
<td>25</td>
<td>23</td>
<td>28</td>
<td>21</td>
<td>0</td>
<td>5</td>
<td>20</td>
<td>8</td>
<td>30</td>
</tr>
</tbody>
</table>


According to the survey:24

- Over 80 percent of global venture capitalists believe that current IPO activity levels in their home countries are too low;
- Venture capitalists believe higher returns generated by IPOs are critical in providing superior returns to limited partners and growth capital to developing portfolio companies;
- The costs of going public are rather high and they involve two types of cost:25
  - Direct costs of an issue, such as underwriting fees, legal expenses, accountancy, audit fees and costs of management time that is less quantifiable;
  - Indirect costs associated with the initial underpricing that constitutes a transfer of wealth from the original owners of the company to the new shareholders.

With respect to the effects of exit routes, the A. Schwienbacher indicates that the likelihood of going public is affected by the number of financing rounds, the investment duration and reporting requirements of the investee to the venture capitalist.26

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24 The study was conducted among venture capitalists in the following countries: Brazil, Canada, China, France, Germany, India, Israel, the United Kingdom and the United States. They received 347 responses from general partners with assets under management ranging from less than $100 million to greater than $1 billion. Multiple responses from the same firm were encouraged as the survey was a general measurement of the state of global investing from general partners, not attitudes of specific firms. The survey was conducted during February and March 2011. More information: *Global Trends in Venture Capital: State of the IPO Market*, Deloitte, NVCA, June 22, 2011.


Furthermore, the research conducted by J. Ritter confirms that venture-backed companies in the US yield higher first-day rate of return than the others during their IPOs (see the Table below).

### Table 4. First-day return of IPOs from 1980–2013

<table>
<thead>
<tr>
<th>Type of company</th>
<th>Number of IPOs</th>
<th>Average First-day Return</th>
</tr>
</thead>
<tbody>
<tr>
<td>VC-backed</td>
<td>2846</td>
<td>27.4%</td>
</tr>
<tr>
<td>Non VC-backed</td>
<td>5009</td>
<td>12.7%</td>
</tr>
<tr>
<td>Non VC and non Buyout</td>
<td>3986</td>
<td>13.6%</td>
</tr>
<tr>
<td>All</td>
<td>7855</td>
<td>18.0%</td>
</tr>
</tbody>
</table>


S. Povaly indicates the research done by Bienz in 2004, which shows IRRs for IPOs (58%) higher than for acquisition exits (18%). The study only distinguishes between acquisition exits and IPOs and shows that highly profitable companies, which need limited oversight, will go public, while less profitable companies, which require more control, will be sold.

The decision to pursue an IPO is relatively more dependent on the current stock market conditions, the portfolio company’s future profitability and opportunities for growth. According to the findings of A. Hyytinen, the decision to exit through an IPO is more sensitive than the decision to exit via a trade sale. That is why PE funds carefully consider the nature of the portfolio companies’ activity, having decided the mode of exits in the sustained business model.

P. Gompers and J. Lerner, examining the relationship of public capital market conditions and the decision to go public, found that private equity investors take firms public during the times of market peaks and rely on private financing (such as trade sales, etc.) when public equity market valuations are lower. They concluded that experienced investors are more proficient regarding the timing of IPOs. The public

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27 Growth capital-backed IPOs are classified as VC-backed in this table.


stock markets’ appetite and receptiveness to new issues varies dramatically, which strongly influences the valuation of a potential IPO exit\textsuperscript{30}.

B.S. Black and R.J. Gilson studied the link between the venture capital market and argued that a well-developed stock market that permits venture capitalists to exit through an IPO is critical to the existence of an active and well-performing venture capital market. They highlight the necessity of liquid stock markets\textsuperscript{31}. In comparison to this research, B.H. Hall concludes that in order to provide an exit strategy for early stage investors of the VC sector there is required a thick market in small and new firm stocks (such as NASDAQ or EASDAQ)\textsuperscript{32}.

Many studies focused on the exit of a VC from the financed firm especially on IPOs which have known, during these last ten years, cycles with strong agitation\textsuperscript{33}. In the United States, there was observed a strong growth in the IPOs industry until 2000. The initial public offering constitute the best means of exit for VCs, since it enables them to make profit from the enthusiasm of the investors toward these technological companies, in particular during hot periods. That was the case in 1999. Then the market largely dropped and is known as a so called ‘cold period’, which is characterized by a deceleration of the number of IPOs and a weak underpricing of the offer prices. The renewal of the market in increasing the number of venture-backed IPOs was observed in 2014 (see table 5 below).

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of all IPOs</th>
<th>Number of venture-backed IPOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>578</td>
<td>183</td>
</tr>
<tr>
<td>1996</td>
<td>883</td>
<td>253</td>
</tr>
<tr>
<td>1997</td>
<td>638</td>
<td>140</td>
</tr>
<tr>
<td>1998</td>
<td>466</td>
<td>77</td>
</tr>
<tr>
<td>1999</td>
<td>578</td>
<td>275</td>
</tr>
<tr>
<td>2000</td>
<td>629</td>
<td>238</td>
</tr>
</tbody>
</table>


\textsuperscript{34} According to this data IPO counts reflect IPOs on US stock exchanges and markets. Venture-backed IPOs are those with at least one US-domiciled venture fund investor.
## IPO as a VC-Funds Type of Exit

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of all IPOs</th>
<th>Number of venture-backed IPOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>119</td>
<td>37</td>
</tr>
<tr>
<td>2002</td>
<td>114</td>
<td>24</td>
</tr>
<tr>
<td>2003</td>
<td>75</td>
<td>26</td>
</tr>
<tr>
<td>2004</td>
<td>239</td>
<td>81</td>
</tr>
<tr>
<td>2005</td>
<td>214</td>
<td>59</td>
</tr>
<tr>
<td>2006</td>
<td>219</td>
<td>67</td>
</tr>
<tr>
<td>2007</td>
<td>267</td>
<td>90</td>
</tr>
<tr>
<td>2008</td>
<td>73</td>
<td>7</td>
</tr>
<tr>
<td>2009</td>
<td>59</td>
<td>13</td>
</tr>
<tr>
<td>2010</td>
<td>154</td>
<td>67</td>
</tr>
<tr>
<td>2011</td>
<td>168</td>
<td>50</td>
</tr>
<tr>
<td>2012</td>
<td>140</td>
<td>48</td>
</tr>
<tr>
<td>2013</td>
<td>182</td>
<td>81</td>
</tr>
<tr>
<td>2014</td>
<td>273</td>
<td>117</td>
</tr>
<tr>
<td>2015</td>
<td>183</td>
<td>77</td>
</tr>
</tbody>
</table>


### 4. Underpricing Venture-Backed Companies and Control after the Exit by an IPO

Firms may time their IPO in order to take so called “windows opportunity”, meaning the periods of market buoyancy during which companies have, on average, an incentive to issue new shares as they are substantially overvalued among other firms in their industry\(^{35}\). Apart from that, companies may decide to go public when they are able to display positive growth opportunities and optimistic valuations. Underpricing is primarily the result of intentional actions and an IPO strategy element that allows investors to gain positive returns. Then debut is considered to be carried out successfully, and the company seems to be promising and perspective\(^{36}\). But if the market does not understand that earnings growth tends to mean revert, an IPO will be over-valued\(^{37}\).

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J. Ritter indicates underpricing as an indirect cost of going public. He argues that both components – direct costs (investment banking fees) and indirect costs (underpricing) account for around 21.2% for firm commitment offers and around 31.87% for best efforts\textsuperscript{38}.

P.M. Lee and S. Wahal find evidence for higher underpricing for venture-backed IPOs. According to them venture capital-backed firms face lower costs when doing an IPO than non-venture-backed firms. They put forward the theory suggesting that VC firms look forward to creating a reputation in the market which helps them in generating profits in the future. According to their findings, to achieve this purpose, venture capitalists are ready to incur the losses due to underpricing. This helps them to bring their portfolio companies public in the future and thus generate higher management fees and more funds\textsuperscript{39}.

Underpricing occurs when the issues are offered to the public at a price which is lower than its intrinsic value. IPOs then get listed in the market with a significant premium to the issue price, due to which investors earn an abnormally high return on the day of listing\textsuperscript{40}. In the process of an IPO, the adequacy of the valuation to a company’s offer for the investors is visible on the first day of the company’s listings\textsuperscript{41}.

With regard to the cost of IPOs, J.S. Ang and J.C. Brau demonstrate that more transparent firms pay lower issuance costs, which they divide into four components: initial underpricing, underwriting fees, legal and administrative fees, and overallotment costs. They also find that firms pay higher costs in all the components of the issuance cost, if they have to pay more in any one component\textsuperscript{42}.

P.A. Gompers argues that young venture capital firms take actions that signal their ability to potential investors. According to his findings, young venture capital firms bring companies public earlier than older venture capital firms in an effort to establish their reputation and raise capital for new funds. What is more, companies financed by young venture capital firms are nearly two years younger and more underpriced when they go public than the companies backed by older venture capital firms. These so-called rushing companies to the initial public offering market impose costs

on the venture firm: a shorter duration of board representation is associated with a greater degree of underpricing and a lower percentage equity stake for the venture capitalist. With regard to the exit timing, he identifies a fund’s sequence number as a potentially important factor in the exit decision, with first-time funds having an incentive to take companies public too early\textsuperscript{43}.

V. Mogilevsky, Z. Murgulov argue that private equity backed IPO firms tend to be larger, more profitable and are underwritten by investment banks that have a proportionally greater share of the underwriting market. Their results indicate that, on average, private equity backed IPOs experience a significantly lower level of underpricing than venture capital backed or non-sponsored IPOs. The authors posit that the presence of a private equity firm as a client divesting through an IPO induces the investment bank to reduce the expected underpricing, because private equity firms tend to be continuing and lucrative clients of investment banks\textsuperscript{44}.

W. Megginson and K.A. Weiss confirm the finding that the underpricing of venture capital-backed initial public offerings is significantly lower than the underpricing of non-venture initial public offerings. They also explain that private equity and venture capital firms are in a position to certify the quality of offerings as they repeatedly bring firms to the public market and cannot afford to offer overpriced issues to keep the established reputation. They support this with another finding – venture capitalists are able to attract higher quality and more experienced underwriters and auditors than other listings. They claim that the quality certification by a venture capital firm reduces the information asymmetry between the issuing firm and the underwriters and auditors, which facilitates a reduction in the overall costs of going public. They also show that the underwriters of venture-backed firms have a significantly greater share of the IPO market than the underwriters of comparable non-venture offerings. They argue as well that venture capitalists also retain a majority of their equity after the initial public offering, which serves as a commitment device\textsuperscript{45}.

Ch. Barry, C. Muscarella, H. Peavy, M. Vetsuypens argue that the typical venture-backed offering is not yet profitable at the time it goes public. Finally, venture-backed initial public offerings have less of a positive return on their first trading day. The authors suggest that this implies that investors need less discount to purchase these shares (that is, the offerings are less “underpriced”), because the


venture capitalist has monitored the quality of the offering. They also documented that venture capitalists hold significant equity stakes in the firms they take public (on average all venture investors hold 34% stake immediately prior to the initial public offering, and control about one-third of the board seats). They continue to hold their equity positions in the year after the initial public offering 46.

A. Brav and P.A. Gompers also found that venture capital-backed IPOs are more underpriced and thus outperform other issues (based on the US market)47. The same results were found by S.A. Franzke, conducting an analysis on the basis of the German market. She showed that venture capital-backed IPOs are more underpriced than other IPOs. It is interesting that she found that the involvement of a reputable venture capitalist leads to a higher underpricing. She stresses that the underpricing behavior has to be regarded in the context of venture capitalists only selling about 20% of their pre-IPO equity stake at the time of the IPO, which makes their exit strategy following the IPOs crucial48.

At a single country level, despite their higher concentration in technology sectors, companies going public on secondary markets are as often venture-backed, as companies on the main markets. Exchange-regulated markets seem to be perceived as a valid alternative to venture funding, allowing firms to forego mezzanine financing before the listing. Some young firms may view the secondary market as a sort of ‘public venture market’ to finance their growth projects. Obviously, the strength of these patterns depends a great deal on a country’s specificities49. For instance, the proportion of VC-backed IPOs is larger on the London Stock Exchange than on any other market50. To take another example, companies in Italy are typically more mature when they decide to go public51.

P.A. Gompers and J. Lerner show that even after the expiry of the lock-up period, private equity firms do not sell their stock but rather distribute shares to their own investors, typically the limited partners in the funds. Their empirical evidence suggests

that share prices drop by 2% in the days following the distribution, which is due to outside investors’ reaction to announcements of secondary stock sales by limited partners, even though the distribution has not been announced\textsuperscript{52}.

The ability to control an exit is crucial to the venture capitalist’s business model of short-term funding of nascent business opportunities, because\textsuperscript{53}:

First, it allows venture capitalists to reallocate funds and the nonfinancial contributions that accompany them to early stage companies.

Second, it allows fund investors to evaluate the quality of their venture capitalists and, if necessary, to reallocate their funds away from venture capital toward other investment vehicles or from less successful venture capitalists to more successful venture capitalists.

Finally, the credible threat of exit by venture capitalists may work to minimize the temptation toward self-dealing by the entrepreneurs who manage the venture-backed companies.

5. The Comparison of Most Common Types of Exit in the USA, Europe and Poland

At the beginning of its existence, the venture capital industry grew slowly. The market was rather geographically concentrated. The flow of money into the venture capital industry in the US between 1946 and 1977 never exceeded a few hundred million dollars annually. Also, the amount of the venture capital funds was rather limited. The deep stagnation of this market was observed at the beginning of the 1970s and was due to a sharp rise in the capital gains tax that increased from 25 to 49%\textsuperscript{54}. For comparison, in 1969, the record year, the newly formed venture capital partnership raised $171 million, while in 1974–75 the members of the US Venture Capital Association raised only $74 million\textsuperscript{55}.

The venture capital market in the US grew dramatically in the early 1980s, as investment opportunities increased, like the emergence of new technologies in the economy or possibility for the pension funds to invest in venture capital that was limited before 1979. During that time, some introduction of tax-related issues was


undertaken. Previously restrictive fiscal policies were reversed and the maximum capital gain tax rate was reduced successively from 49 to 28%. The stock options became taxable when the relevant shares were sold rather than having the rights connected with the options exercised. These factors caused the venture capital market in the US to plummet again.

The fundraising and investment environments in the venture capital ecosystem remained strong in 2015 and the capital invested reached its highest mark since 2000. The exit environment for venture-backed companies, on the other hand, was unable to maintain the pace from 2014, but was on par with 201356.

### Table 6. Main indicators on VC investments in the USA (2007-2015)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (in $ billion)</td>
<td>14,798.37</td>
<td>14,718.3</td>
<td>14,320.11</td>
<td>14,628.17</td>
<td>14,833.68</td>
<td>15,126.28</td>
<td>15,348.04</td>
<td>15,691.18</td>
<td>16,088.25</td>
</tr>
<tr>
<td>Total funds raised (in $ billion)</td>
<td>34.92</td>
<td>36.18</td>
<td>12.01</td>
<td>19.57</td>
<td>23.31</td>
<td>24.42</td>
<td>20.64</td>
<td>35.35</td>
<td>35.17</td>
</tr>
<tr>
<td>Total investment in the country (in $ billion)</td>
<td>31.06</td>
<td>29.11</td>
<td>21.52</td>
<td>25.75</td>
<td>36.22</td>
<td>32.57</td>
<td>35.86</td>
<td>58.85</td>
<td>73.35</td>
</tr>
<tr>
<td>Total divestment in the country (in $ billion)</td>
<td>40.79</td>
<td>18.15</td>
<td>15.69</td>
<td>30.28</td>
<td>36.90</td>
<td>53.94</td>
<td>36.24</td>
<td>81.74</td>
<td>50.37</td>
</tr>
</tbody>
</table>


The most common type of exit in the US is not an IPO. For example, for every dollar of venture capital invested in the US from 1970 to 2010, $6.27 of revenue was generated in 2010. But on the other hand, although the investor has high hopes for any company getting funded, only one in six ever goes public and one in three is acquired57.

For a long time, venture capital was regarded as an American phenomenon. Although there were some individual and rather isolated investment initiatives, in general venture capital did not exist outside the US during the 1970s. The development of the European venture capital market took place mainly in the UK. It had over 20 venture capital funds at the end of the 1970s, with a total investment

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56 NVCA Yearbook, 2016, p. 9.

57 Venture Impact, The Economic Importance of Venture Capital Backed Companies to the U.S. Economy, NVCA, p. 2.
of £20 million. After a decade, the industry grew significantly, investing more than £1300 million into 1297 venture funds. In terms of growth, the European market outperformed the US venture industry. It was connected with the introduction of the secondary markets in many European countries. Historically, the secondary markets in Europe have been successful in hot periods and have collapsed in cold periods58.

**Figure 3. Exit routes by the number of divested companies in the USA in 2007–2015 (%)**

![Figure 3. Exit routes by the number of divested companies in the USA in 2007–2015 (%)](image)


Venture capital was in Europe for a long time the business of rich families (family offices), corporations, public finances (directly or indirectly), banks (directly or through a captive structure) and personal connections. Hence, depending on the national specificities, some sources of financing dominate others, e.g. corporate venturing and family offices in Switzerland, public companies and corporations in France, banks and corporations in Germany, family offices and personal connections in Italy, family offices and corporations in Scandinavia59.

In 2015 total fundraising reached €47.6bn, nearly matching the level of 2014. The number of funds raised (274) decreased by 15% compared to 2014, but is still above the levels of 2012 and 2013. The European private equity and venture capital raised in the past three years was 70% more than between the years 2010 and 2012.

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Over a third of the total amount invested in European companies was attributed to cross-border investments\(^6^0\).

### Table 7. Main indicators on PE investments in Europe (2007-2015)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (€ billion)</td>
<td>13,693.60</td>
<td>13,823.73</td>
<td>13,022.44</td>
<td>13,680.06</td>
<td>14,182.18</td>
<td>14,514.21</td>
<td>14,626.73</td>
<td>14,989.80</td>
<td>15,685.50</td>
</tr>
<tr>
<td>Total funds raised (in € billion)</td>
<td>79.59</td>
<td>80.47</td>
<td>18.91</td>
<td>21.80</td>
<td>41.60</td>
<td>24.58</td>
<td>54.40</td>
<td>47.97</td>
<td>47.57</td>
</tr>
<tr>
<td>Total investment in the region (in € billion)</td>
<td>0.43</td>
<td>0.64</td>
<td>0.28</td>
<td>0.65</td>
<td>0.68</td>
<td>0.47</td>
<td>0.38</td>
<td>0.25</td>
<td>0.80</td>
</tr>
<tr>
<td>Total divestment in the region (in € billion)</td>
<td>0.14</td>
<td>0.07</td>
<td>0.03</td>
<td>0.08</td>
<td>0.18</td>
<td>0.05</td>
<td>0.28</td>
<td>0.53</td>
<td>0.75</td>
</tr>
</tbody>
</table>


Almost 2,500 European companies were exited in 2015, representing former equity investments (divestments at cost) of €40.5bn. This amount matches the level of 2014, which was until then the highest reported exit volume to date for the European private equity. The most prominent exit routes by amount were a trade sale – four out of ten companies followed these exit routes. More than 50 companies exited by an IPO in the years 2014–2015 (see the Figure below)\(^6^1\).

Poland is one of the emerging markets in which there has been growing interest from the worldwide investment community in recent years. This happened since the Polish economy transformed from a socialist economy to a market economy, and that is why enterprises became more competitive and relying on external financing.

The private equity sector in Poland started to grow in 1990. Nowadays, Poland is one of the most developed private equity industry in Central and Eastern Europe and over the last twenty years it has become one of the world leaders in terms of private equity returns. What is more, the private equity industry in Poland is one

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of the most developed across all emerging market countries. Below the overview of the market is presented.

**Figure 4. Exit routes by the number of divested companies in Europe 2007–2015 (%)**

![Graph showing exit routes by the number of divested companies in Europe 2007–2015 (%)](image)


Deal sourcing in Poland has evolved in the last two decades. The competition was not as strong as in developed countries and there were a lot of investment opportunities in the 90s that came from privatization as the result of the transformation of the Polish economy. Nowadays, the competition between VCs is not as limited as it was at the beginning of the private equity market in Poland.

The crisis also influenced the PE sector, so this market decreased in 2009. Then after a renewal in the years 2010–2012, it dropped again in 2013. Capital turbulences on the financial market and high uncertainty regarding safety of investments caused the decrease not only in the amount of funds raised and the invested capital in the PE sector. It had an impact on the willingness to exit the portfolio companies during that time.

Furthermore, in 2015 the share of the Polish in the total value of investments in the CEE countries amounted to 53%.

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62 Industry statistics – by the country of a private equity firm.

Table 8. Main indicators on PE investments in Poland (2007–2015)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP (€ billion)</td>
<td>313.14</td>
<td>360.36</td>
<td>313.17</td>
<td>361.21</td>
<td>379.79</td>
<td>389.79</td>
<td>394.78</td>
<td>410.01</td>
<td>428.18</td>
</tr>
<tr>
<td>Total funds raised (in € billion)</td>
<td>0.82</td>
<td>0.76</td>
<td>0.15</td>
<td>0.11</td>
<td>0.44</td>
<td>0.49</td>
<td>0.26</td>
<td>0.13</td>
<td>0.16</td>
</tr>
<tr>
<td>Total investment in the country (in € billion)</td>
<td>0.43</td>
<td>0.64</td>
<td>0.27</td>
<td>0.65</td>
<td>0.68</td>
<td>0.47</td>
<td>0.38</td>
<td>0.25</td>
<td>0.80</td>
</tr>
<tr>
<td>Total divestment in the country (in € billion)</td>
<td>0.14</td>
<td>0.07</td>
<td>0.03</td>
<td>0.08</td>
<td>0.18</td>
<td>0.05</td>
<td>0.28</td>
<td>0.53</td>
<td>0.75</td>
</tr>
</tbody>
</table>


In Poland, the exit by the venture capitalist through an IPO on the Warsaw Stock Exchange is still unavailable as the Polish capital market is still narrow. In the years 2008–2010 and in 2013 there were no VC exits by an IPO. In Poland venture capital funds exit principally by a trade sale (see the Figure below).

Figure 5. Exit routes by the number of divested companies in Poland 2007–2015 (%)\(^{64}\)

![Exit routes by the number of divested companies in Poland 2007–2015 (%)](image)


\(^{64}\) Industry statistics – by the country of a private equity firm.
Although there are numerous similarities between the US and Europe, there are also important differences. For instance, the replacement of the former management is easier in the US than in Europe, as it may increase managerial efficiency, which positively affects the probability of going public (and negatively affects a liquidation). The liquidity of the VC market is still higher in the US.

**Conclusion**

A key characteristic of private equity finance is that investors hold their investments only for a limited period of time. Their exit type as a way of cashing out on their investment in a portfolio company is a consequence of the exit strategy, which means the plan for generating profits for the owners and investors of a company. Typically, the options of exits are to make an initial public offering (IPO), merge, or be acquired. However, the strategy containing the choice of the right type of exit has to take into account several trends and circumstances changing the industry environment.

According to Cumming and McIntosh, in the circumstances of high information asymmetries, the exit type preferences from a value maximization standpoint would be ranked as follows: buybacks, trade sales, secondary buyouts and finally IPOs. Information asymmetries can be mitigated by investment duration. Thus, companies characterized by high information asymmetries are divested through IPOs and are held the longest in the portfolio, while those sold via buybacks are kept the shortest. Following this theory, write-offs would be held even shorter than buy-backs.

While an IPO is the most spectacular and visible form of exit, it is not the most common, as historically it was in the US, especially before 2000. Initial public offerings as so called the gold standard in venture capital success, have been decreasing significantly over the past years. Sales to larger companies in the industry (trade sales) are only a second-best solution, and such sales alone are not sufficient to sustain the venture capital model. Nowadays, most companies are sold through a merger or acquisition. Furthermore, the liquidity of a portfolio company and the path to this stage is uncertain and considerably longer. Nowadays, in the US an acquisition is the

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most significant way of exit for venture-backed and private equity-backed companies. Both in Europe and in Poland the statistical data shows the same. Furthermore, in this region mainly a trade sale is used as a type of exit. This conclusion is confirmed by the statistical figures presented by the EVCA and NVCA, which show that for the last few years an IPO has not been a favorite type of the exit route for private equity and venture capital funds. Hence, it can be stressed that an IPO does not represent a sensible option for all portfolio companies.

As indicated in this article, although there are numerous similarities between the US and Europe, significant differences still remain, especially in terms of contracting and monitoring. Furthermore, younger European and US VC firms exhibit much fewer differences than their older participants. This is the first evidence suggesting the convergence of both markets68.

**Bibliography**


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49. Venture Impact, *The Economic Importance of Venture Capital Backed Companies to the U.S. Economy*, NVCA.


The Role of the Polish Private Equity Sector in the CEE Region

Abstract

The aim of the article is to analyse the position of the Polish private equity sector as a leading player in the CEE region and to assess the impact of these funds on economic development. It has been pointed out that the fund sector is operating in an increasingly unpredictable environment (which could be seen during the financial crisis) and operates based on demanding regulations and growing risk. The paper presents the role of private equity funds in the CEE region, which by 2004 had seen a noticeably faster growth than in Western Europe, due to the transition to a market economy. The Polish private equity market in the CEE region was further analysed, which as the largest economy in the CEE region is a very attractive place for investors. The conclusions and directions of the role of private equity funds were presented, and it was emphasised that Poland and the whole CEE region are at an early stage of their market development, but their distance to Western Europe decreases from year to year. Currently, the CEE private equity market in the most developed countries offers great opportunities to its investors thanks to high competition, high growth potential and comprehensive solutions.
1. Introduction

Poland is surely the most attractive economy in the CEE region due to its size (the biggest in the region), well developed capital market and stable banking sector. Its market has developed institutions that support private equity funds, such as the European Investment Fund. Every year the country closes the gap dividing it from Western European economies. We need to bear in mind that Poland is the only economy in Europe that reported growth over the years of the global financial crisis, and this stable economic growth has made it the major private equity market in the CEE region. According to the KPMG\textsuperscript{1} Report, the value of private equity funds in our country in 2015 reached ca. EUR 803.5 m (it tripled compared to 2014), more than a half of the total value of all transactions made in the region (Poland's GDP represents 35% of the GDP of the whole CEE region). Noteworthy, Poland is the most attractive target for investing private equity funds in the region as concluded in the KPMG Report of 2014\textsuperscript{2} and private equity funds impact economic growth of the country where they invest, targeting highly innovative and dynamic enterprises.

The main goal of the paper is to assess the role of the Polish private equity sector in the CEE region and identify its growth outlook for the forthcoming years.

The paper discusses conclusions concerning the growth of the private equity sector in Poland based on the latest data published by Eurostat, the European Commission, the International Monetary Fund, and the European Private Equity and Venture Capital Association (EVCA).

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2. Role of Private Equity Funds in the CEE Region

Private equity funds came back to the CEE region in 1990 when Central and East European markets opened up to foreign markets and adopted principles of the market economy. We need to stress, however, that the private equity market in the CEE region is still at its initial development stage.

Diagram 1. Private equity investment in the CEE region between 2012 and 2015 (in million EUR)


We need to bear in mind that as a result of the transition from the planned to market economy until 2004 economies of Central and Eastern Europe grew much faster than their Western European counterparts. In the opinion of the European
Investment Funds, the CEE region is not homogenous and its countries differ substantially with respect to their development level. On the one extreme, there are: Poland, the Baltic States and the Czech Republic, which follow Western European standards, while on the other end there are countries like Bulgaria or Romania, which have a lot to do to catch up. In terms of investment, value-wise Poland ranks first (54% of total investment) followed by Serbia (14%), Hungary (10%) and Romania (9%). Investment projects in these four countries account for 85% of all investment projects in the CEE region. This is well illustrated in Diagram 1, showing the value of private equity investment in the Central and Eastern European region from 2012 to 2015.

In 2015 the value of private equity funds in the CEE region amounted to EUR 1.6 bn and increased by 25% compared to the previous year (the highest growth from 2009). In the same year, in total 312 enterprises from the region used private equity funds and investment from Central and Eastern Europe represented 3.4% of total private equity investment in the European market (measured as a percentage of GDP it was 0.127% compared to the European average 0.302%).

Diagram 2. Value of exit transactions and private equity investment in Poland (in million EUR)


Value-wise, 2015 was the best year for Poland in terms of private equity investment. According to the data provided by the European Private Equity and Venture Capital Association (EVCA), private equity funds invested ca. EUR 800 m and exceeded by 7% the value of exit transactions, which amounted to ca. EUR 750 m. Currently, a major recovery is observed in the investment market in Poland, compared to the previous years when investment was limited primarily to portfolio management and exits from ongoing investments, as demonstrated in Diagram 2⁴.

3. Analysis of the Polish Private Equity Market as the Major Market in the CEE Region

Poland is the largest and the most populated country in Central and Eastern Europe; it is also the financial centre of the region (the Warsaw Stock Exchange is among the leaders with the highest number of IPOs). Remarkably, the Polish banking sector in its exit strategy from the financial crisis did not engage resources from the central budget. Private equity funds, which invest in our country, benefit from increasing internal demand and the growth of exports.

Diagram 3. Y/Y GDP change in Poland and in the Eurozone (%) in the period 2012–2017


As demonstrated in Diagram 3, the effects of the economic downturn resonated across all of the European Union. Yet, Poland was the only Member State who grew over that period. Forecasts of the European Commission suggest that Poland will grow at a rate higher than the eurozone. At the moment Poland is the only economy whose GDP has continued to grow in real terms since 1992.

According to data published in the report of the European Commission on the development of small and medium-sized enterprises, entrepreneurship in Poland is above the EU-average and over the past few years SMEs population has substantially increased. We need to note that investments by private funds in Poland were much more stable than in the “old” EU Member States (who reported significant drops after 2008).

Diagram 4 confirms that entrepreneurship depends on exports, currently 2.5 times higher than when Poland joined the European Union. The continuously developing domestic market is another relevant factor as Poland has recently recorded the highest growth in consumption in the EU. Compared to other economies from the CEE region, the consumption index for Poland is relatively stable.

Diagram 4. Polish exports (in billion EUR) in the years 2012–2015


The value of private equity funds in the CEE region is still very low compared to most Western European economies. In the case of GDP growth, we might expect

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6 Ibidem, p. 16.
higher private equity investments. Noteworthy, private equity investment in Poland in 2015 represented 0.19% and the country ranked 14 in Europe, which is illustrated in Diagram 5 that presents also investments in other European countries.

Diagram 5. Private equity investments in Europe in 2015 in relation to GDP


7 Private Equity in Poland 2016…, op.cit, p. 16.
Yet, private equity market in Central and Eastern Europe is relatively young compared to well-developed Western European economies or the United States. Their portfolios include big enterprises from the sectors such as, e.g., technology, the media, medicine, telecommunications and logistics, side by side with medium-sized companies offering innovative products and services (start-ups).

4. Development Outlook for the Private Equity Market

Questionnaire studies conducted by the KPMG\(^8\) consulting company have shown a new trend among private equity funds in the Polish market, the so called delisting, i.e. an increasingly bigger share of companies intending to exit the public market, which is also due to the shifting of resources from private retirement schemes (in Polish: OFE (literally: open retirement funds) to the Polish Social Insurance Institution (Polish abbr. ZUS) and diminishing popularity of the stock exchange. Nowadays, it is much more difficult to raise capital at the stock exchange and entrepreneurs are more and more inclined to use private equity funds as a potential IPO alternative\(^9\). Private equity market in Poland is growing every year and privatisation of state-owned companies has become much less attractive\(^10\).

The analysis shows that the outlook for the growth of the private equity market is very promising. As indicated above, there is a relationship between GDP per capita and private equity investment (higher GDP translates into higher private equity funds). It is expected that in the future Polish private equity market will be as strong as that in Germany or France\(^11\).

However, such estimates are relatively highly risky considering previous Polish experiences often stimulated, unfortunately, by the unwillingness of many private equity funds to finance development projects. The climate of risk surrounding various investment projects successfully discourages potential investors from engaging in such ideas even if they represent a high development potential.

The European Investment Fund belongs to the European Investment Bank Group and a major investor in private equity funds in Europe, whose goal is to support small and medium-sized enterprises in Europe. The fund invests in the SME sector using also venture capital. Since 1999 it has operated across the whole CEE region (in Poland since 2001).

\(^8\) The study involved 26 funds representative of the private equity sector.
\(^9\) Initial Public Offering – making a public offering on the stock exchange for the first time.
Undoubtedly, 2016 was meaningful for the international private equity market when it comes to fundraising. In January 2017 the value of private equity funds addressed to enterprises amounted to USD 45 bn, i.e. 78% more than the year before (in 2015 the amount was USD 25 bn)\(^1\). Diagram 6 shows the value of private equity funds globally over the period 1996–2016.


![Diagram showing the value of global private equity funds from 2012 to 2016.](source)


Recently, the sector has attracted many powerful investors who seek stable profits and possibilities to invest substantial amounts of capital. The latest presidential elections in the United States and Donald Trump’s victory boosted investors’ interest when the administration announced infrastructure will be their priority and they will increase its financing. CEOs of the biggest alternative asset management companies have revealed their plans to increase private equity funds, which may suggest that 2017 may be the record breaking year for raising private equity capital.

We need to realise that private equity companies accumulate their capital much more quickly than in the past. According to the Preqin report, in 2016 private equity funds needed 16 months from the launch to the final close (for comparison, in 2015 it took them 17 months and in 2013–18 months). Buyout and infrastructure

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funds are currently in the highest demand and they close within 12 and 15 months, respectively\textsuperscript{13}.

As stated in the KPMG Report\textsuperscript{14}, private equity funds in Poland will primarily invest in enterprises in the middle stage of their development, seeking money for further growth. Most of the surveyed enterprises assessed the access to debt financing as good and experienced no problems in receiving it, which is why they realise that the collaboration with private equity funds offers them better prospects to enter international markets.

5. Conclusion

In Europe, Poland is considered a leader in private equity market development in the CEE region due to, inter alia, the relatively stable economic performance over the years of the financial crisis (unlike most EU Member States), a well-functioning Stock Exchange, and the precisely specified exit strategy. Noteworthy, until 2004 funds operating in the CEE region reported much better results than those from Western Europe. Currently, Poland is no longer perceived as an emerging economy since the country has already fully embraced Western European standards. Private equity market in Poland holds a strong position in the CEE region and almost half of private equity investments are located in the country.

The above presented data confirms that Poland is an attractive destination for private equity investors. Its economy offers\textsuperscript{15}:

1. growing consumption, i.e. access to a receptive market with a high growth potential (Polish market accounts for 1/3 of the whole CEE region), which translates into dynamic development of many industries;
2. the best developed capital market in Central and Eastern Europe, which impacts economic growth (our economy is among the fastest developing economies in the EU);
3. a stable banking sector, modern and competitive in the CEE region, which offers relatively easily available debt financing to business;
4. well educated employees capable to actively cooperate with private equity funds;
5. well organised legal and systemic foundations that meet international standards and protect investors’ interests.

\textsuperscript{14} Private Equity in Poland 2016…, op.cit.
\textsuperscript{15} Private Equity in Poland: Facts and Opinions…, op.cit., p. 19.
According to the survey conducted by the KPMG\textsuperscript{16} consulting company, private equity funds in Poland enjoy double or even triple return on investment. Polish market offers good growth prospects because of its advantages discussed above, which are expected to attract even more investors. Clearly, when formulating optimistic outlooks we need to be rather cautious about the assessment of developments when it comes to the economic situation. Especially, when risk analyses performed by private equity funds are quite subjective and qualitative by nature. As a result, declarations made by their representatives about being ready to support interesting projects quite often remain empty words.

In the light of the analysis, which has taken account of diverse reports, we may conclude that private equity funds will grow dynamically in the forthcoming two years and it seems justified to say that Poland is one of the most promising markets in Central and Eastern Europe in terms of the number of profitable takeovers, which are expected to grow in the near future.

\textbf{Bibliography}


\textsuperscript{16} Private equity in Poland: Facts and Opinions…, op.cit.


Information and Statistical Efforts of Selected Safety Network Institutions in the Area of Financial System Stability

Abstract

Financial system stability is considered a public good. The main role of the financial safety network is to stabilise the system. Information and statistical activities of institutions which belong to the safety network are the tools which may improve the stability. We need to stress that most decisions are based on information, in particular decisions on investment or speculation, hence by providing information and statistical data these institutions indirectly enhance the overall stability of the system. An overview and analysis of selected studies addressing financial system stability helped the authors draw theoretical and practical conclusions as to the stability itself and the impact of information and statistics upon its improvement.

Keywords: financial system stability, safety network, economic crisis, financial crisis

JEL Code: G100
Introduction

Financial system stability became a real issue in the late 20th century due to a series of financial crises. Before the latter occurred, safety mechanisms in financial systems were not very much sophisticated and central banks focused on statutory activities, mainly on monitoring inflation. The current relevance of the subject is confirmed by the approach of top management of the National Bank of Poland (NBP), according to which maintaining financial system stability, especially against potential shocks and problems experienced by some financial institutions, is the priority challenge for banks1.

This study provides an overview of information and statistical efforts of institutions within the safety network, such as: the International Monetary Fund, European Central Bank, and National Bank of Poland. These efforts often translate into reports throwing light on the situation from different angles, which are major sources of knowledge to market participants about the condition of the financial system. By providing such information, indispensable to make informed investment decisions, information and statistics related activities of these institutions indirectly contribute to the enhanced overall stability of the system. For obvious reasons pertaining to available space, secondary research on financial system stability included in this paper has been restricted to an introductory overview2. The description of the tools and methods applied to assess the stability of a banking system, often encountered in related studies, requires a separate discussion.3 Selected indicators used in the text are complementary and indicative by nature.

The goal of the paper is to make an overview and assess information and statistical activities of selected institutions within the safety network geared at enhancing financial system stability. By analysing the content of reports drafted by major institutions involved in maintaining the stability of financial systems we will be able to compare the main objectives behind such reports, as well as similarities and differences in their approaches and data presentation. Moreover, the above findings will help draw the main conclusions about theoretical and practical aspects of the stability of the system.

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1 Based on the President of NBP Adam Glapiński’s address to the Polish Parliament on 20.07.2016.
The paper is composed of several essential parts. The first one provides a literature review on the financial system theory, its definition and the notion of stability. The second part examines information and statistical activities of the International Monetary Fund. In the third part we discuss the content of an NBP report on financial system stability. Finally, the fourth part describes the specificity of the financial stability assessment by the European Central Bank. The paper finishes with final conclusions.

1. Literature Review: Notions Related to the Financial System and Its Stability

Financial system stability has been explored on many occasions in specialist literature. The question concerns and covers various aspects of finance and the financial system. The scope of financial system stability should be taken as a starting point of the overview. To define the subject of our paper we should explain the notion of a financial system and then focus on its stability.

Financial system can be understood as a "set of logically linked organisational structures, legal acts, financial institutions and other elements that enable establishing financial relations in the real sector as well as in finance". A financial system comprises a chain of closely interrelated financial institutions, markets, instruments, services, practices, and transactions.

By making reference to a financial system we need to take account of the systems theory, according to which a system unifies relatively independent elements that perform various functions vis-à-vis goals that are considered common. The purpose is a central distinguishing factor essential for any system. At the same time, fundamental differences between financial systems in different countries lie in the hierarchy of goals.

Generally speaking, within any financial system money and capital are transferred between those who have accumulated financial surpluses and those who need higher liquidity. A financial surplus is channelled by financial markets and intermediaries.

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6 System features quoted after T. Kotarbiński, Traktat o dobrej robocie, Zakład Narodowy im. Ossolińskich Wydawnictwo Polskiej Akademii Nauk, Wrocław-Warszawa-Kraków-Gdańsk-Łódź 1982, p. 79: "method, i.e. a particular procedure, is a way to accomplish a complex act consisting in a specific choice and sequence of its components, planned and organised in such a way that it can be reproduced repeatedly."
7 A. Sullivan, S.M. Shefrin, op.cit., p. 551.
to those who suffer from financial shortages\(^8\). Thus, a financial system is the broadest term comprising the mechanism of flows of funds in the economy. Complexities of the system generate various difficulties resulting from simplifications, non-homogeneous terminology and approaching various levels of market analysis as independent of changes and external factors. Ignoring links at different levels in the analysis of financial system stability may lead to incorrect conclusions.

Essential functions of the system are in principle identical in all economies. The classical approach distinguishes the following functions: monetary, capital redistribution, and supervisory\(^9\). However, due to differences in the size, complexity, applied technology, culture, policy or institutional mechanisms financial systems may differ a lot\(^10\). Hence, especially under dynamic changes and integrating processes taking place in financial markets, various analytical approaches to the system combined with the holistic approach in the analysis may provide complementary and useful information to possibly reliably reproduce real processes in the financial system against the analytical background. Different approaches to the financial system in specialist literature are presented in Box 1.

Knowing how the financial system, which impacts the economy, works is a condition for its smooth performance. It also encourages a reflection over its efficiency and effectiveness. Obviously, a properly operating and stable financial system is crucial for the growth of the economy of any country\(^11\). Independently of the approach, a financial system is decisive for the allocation of resources and building-up a modern economy\(^12\). Due to multidimensional and complex links between its elements and the financial environment, disturbances originating from any element of the system may undermine its overall stability. Thus, to define financial system stability we need to adopt a comprehensive approach.

Financial stability consists in a dynamic and lasting equilibrium experienced in interlinked financial markets\(^13\). Equilibrium means reducing emerging imbalances and coping with them before they have become dangerous. A similar definition is

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proposed in the *Financial Stability Report*, where financial system stability is characterised as a state in which the system operates efficiently on a continuous basis, even if unexpected, unfavourable and little likely disturbances occur at a substantial scale\(^{14}\).

**Box 1. Overview of approaches to the financial system**

<table>
<thead>
<tr>
<th>Analytical approach</th>
<th>Characteristics</th>
<th>Vision of the financial system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional</td>
<td>Financial system depicted and classified from the viewpoint of financial institutions; additionally a selected feature of institutions is often analysed (e.g. competitiveness, investors’ rights protection, quality of financial regulations).</td>
<td>Financial system as a set of specific financial institutions classified in different groups.</td>
</tr>
<tr>
<td>Narrow functional</td>
<td>Financial system analysed primarily in the context of provision of funds to the real sector through the central bank and commercial banks.</td>
<td>Financial system as a mechanism providing funds to the real economy.</td>
</tr>
<tr>
<td>Monetary</td>
<td>Financial system analysed against its two major functions: intermediation between its surplus and deficit actors and transformation.</td>
<td>Financial system as an intermediation mechanism between surplus and deficit actors of the real economy.</td>
</tr>
<tr>
<td>Based on intermediation</td>
<td>Financial system analysed from the viewpoint of its functions. Supporters of such an approach argue in favour of its relative stability and comparability of functions of national financial systems.</td>
<td>The notion of financial system covers a network of financial markets, intermediaries and other institutions, which help deliver all financial plans of households, enterprises and the government.</td>
</tr>
<tr>
<td>Broad functional</td>
<td>Financial system described as relations between its components and their impact upon the system (the idea of complementarity and coherence).</td>
<td>Financial system as an orderly set of complementary and possibly coherent elements or subsystems.</td>
</tr>
</tbody>
</table>


In another approach, financial system stability means the stability of its two fundamental components: financial institutions and financial markets. The stability of financial institutions takes place when they are able to perform their contractual obligations continuously, trouble-free and without any external assistance. Financial markets stability is interpreted in the context of stable prices of assets\(^{15}\).

A financial system is stable when it is able to withstand shocks without giving way to the accumulation of processes that might adversely affect the allocation of savings

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into investments and the processing of payments in the economy\textsuperscript{16}. To maintain the allocation function and prevent payment backlogs, as well as to preserve a broadly understood equilibrium under conditions of shocks that may lead to crises, the financial system is equipped with self-regulation and recovery mechanisms\textsuperscript{17}. Hence, we may observe that stability is the effect of the smooth performance of preventive and remedy tools. They prevent shocks originating from a single market actor to propagate and get transmitted\textsuperscript{18}, i.e., to avoid a situation when the risk connected with operations of individual actors, if materialised, might lead to systemic risk.

Financial system stability may also be interpreted as a public good\textsuperscript{19}. Loss of trust in the financial system may entail its crisis and the crisis of the economy in question\textsuperscript{20}. The synergy between the level of regulations, binding market solutions and approved principles of financial markets organisation and the development of the financial market is crucial for stability\textsuperscript{21}. Its absence undermines stability as we have seen it, e.g., during the latest global crisis. On top of that, it seems that the domination of big and systemically important financial institutions, the so-called SIFIs, poses a challenge to stability\textsuperscript{22}. That is why it is analysed by central institutions, including those from the financial system safety network\textsuperscript{23}.

Considering the above, the analysis of security and stability of the financial system suggests that working out and maintaining a proper balance between the development of the financial system and the regulatory framework that directly or


\textsuperscript{17} Regulatory risk is the risk of changes in the legal business environment, after: Z. Korzeb, \textit{Wpływ otoczenia regulacyjnego na liczbę fuzji i przejęć w polskim sektorze bankowym}, “Bezpieczny Bank”, No. 3(64) 2016, Bankowy Fundusz Gwarancyjny, Warszawa 2016, p. 48.


indirectly targets its entities is crucial. Under present economic conditions, such as, e.g., the global polarisation of production and consumption, surpluses and deficits, savings and debt, economic growth and stagnation, as well as growing market risk, increased supply of money and political and social tensions, financial system stability is paramount and apparently increasingly more difficult to maintain.

2. Information and Statistical Activities of the International Monetary Fund

The International Monetary Fund develops many analytical initiatives designed to improve the transparency of financial systems and their resistance to crises through regular risk assessment exercises. Market data is also used by the IMF in its statutory activities, including the drafting of the Global Financial Stability Report. The report assesses the global financial system stability as well as individual financial markets. Moreover, it provides detailed analyses of emerging markets against the background of global processes. It focuses on current market conditions and takes account of systemic circumstances. Each edition of the report develops issues highlighted in another IMF report, World Economic Outlook.

The report comes with a vast database of primary data, which enables mapping and processing numerical data, generating comparisons and graphic representations. The data is aggregated at different levels, from sectoral data for individual countries to regional or global data.

Under another information and statistical initiative, the IMF reports the so called Financial Soundness Indicators. The database based on them seeks to provide information about the financial standing of financial institutions, the non-financial sector, and households in individual countries. Indicators are divided into groups that describe the performance of deposit institutions, other financial institutions, non-financial enterprises, households, financial market liquidity, and the real estate market. The data is provided by countries on a voluntary basis. Table 1 presents selected information about the stability of the financial system in Poland.

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Table 1. Selected indicators of financial stability of the banking system in Poland

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<tbody>
<tr>
<td>Solvency ratio</td>
<td>13.9</td>
<td>13.1</td>
<td>14.8</td>
<td>15.7</td>
<td>14.7</td>
<td>16.5</td>
</tr>
<tr>
<td>Equity to assets</td>
<td>8.2</td>
<td>7.8</td>
<td>8.7</td>
<td>9.1</td>
<td>8.9</td>
<td>9.4</td>
</tr>
<tr>
<td>Impaired loans to all loans</td>
<td>4.9</td>
<td>4.7</td>
<td>5.2</td>
<td>5.0</td>
<td>4.8</td>
<td>4.3</td>
</tr>
<tr>
<td>Provisions for impaired loans</td>
<td>72.5</td>
<td>71.8</td>
<td>68.2</td>
<td>67.8</td>
<td>69.3</td>
<td>69.6</td>
</tr>
<tr>
<td>Return on assets</td>
<td>1.0</td>
<td>1.3</td>
<td>1.2</td>
<td>1.1</td>
<td>1.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Return on equity</td>
<td>13.3</td>
<td>16.1</td>
<td>14.0</td>
<td>12.1</td>
<td>12.3</td>
<td>9.5</td>
</tr>
</tbody>
</table>

Source: the authors’ own calculations based on the IMF data, Global Financial Stability Report, April 2016.

Despite strong criticism of the IMF’s activities\textsuperscript{27}, databases and specialist reports are extensive sources of information. Once again we need to stress that recipients of such information are expected to acquire necessary data and be able to assess it and to reject unnecessary information, i.e. to filter the so called information noise.

3. NBP Financial Stability Report

The NBP Financial Stability Report [PL: Raport o stabilności systemu finansowego] is an analysis of the financial system in Poland published every six months\textsuperscript{28}. The goal of the Report is to present the results of the analyses of financial system stability, including the assessment of its robustness to potential disturbances, and to inform financial market players about the condition of the system and potential risks. Such initiatives improve the understanding of market mechanisms under specific economic conditions, which may favour system stability. The report in question highlights some relevant theses, which may be used to sketch the idea of stability. They are\textsuperscript{29}:

- financial system stability is the pre-condition for long-term economic growth;
- banking sector stability is particularly relevant for maintaining financial system stability in Poland since assets of this sector account for two thirds of the overall system and banks are fundamental for financing the economy and for the flow of financial resources and equity;

\textsuperscript{27} The IMF has been heavily criticised by many circles, including economists. The voice of Joseph Stiglitz, Nobel Prize laureate in economics seems to be the best heard in discussions, inter alia in: J.E. Stiglitz, *Globalization and Its Discontents*, Washington, DC, W.W. Norton & Co., 2002.

\textsuperscript{28} The NBP Board decided that the Report on financial system stability will be published in December and June every year to provide data for periods the most frequently used by analysts, i.e. the first half and the end of the year; after http://www.nbp.pl/, accessed on 13.08.2016.

\textsuperscript{29} *Raport o stabilności systemu finansowego* [Financial Stability Report], February 2016, Financial Stability Department, NBP, Warszawa 2016, p. 3.
financial system stability is closely linked with the tasks entrusted to the central bank, which is part of the system responsible, inter alia, for the stability of prices, minimising systemic risk and organisation of cash settlements and is involved in drafting monetary, regulatory and supervision policies, which impact financial stability and growth.

The logical structure of the survey is the following. Conditions in which financial institutions operate are analysed in the introductory section. In general, the report describes processes taking place in the broadly understood macroeconomic environment and sketches phenomena decisive for the situation in individual markets (monetary, foreign exchange, bonds, stock, and real estate) in the previous period30.

As stated in the introduction, the banking sector is the most important for the stability of the financial system in Poland, which is why the report discusses it broadly. Priority areas studied in the report include: bank lending activities, loan quality in the context of credit risk, market risk, structure of financing and liquidity risk, sector earnings, capital position of banks, and the market value analysis for banks. The above analyses are descriptive and illustrated with diagrams that present corresponding data. They are also substantiated with tables of over thirty indicators that describe the situation in the banking sector, especially in domestic commercial banks and cooperative banks. These indicators include: return on assets, return on equity, net interest margin, operating costs to net income from banking activity, burden of charges to provisions for impaired loans to net income from banking activities, the loan growth rate, impaired loan ratios, charges to provisions for impaired loans to net value of loans, the funding gap, capital ratios, and the liquidity ratio. Values of examples of indicators discussed in the abovementioned report for the last 5 quarters are presented in Table 231.

Table 2 provides indicators reflecting the financial standing of the banking sector, domestic commercial banks and cooperative banks. Further the report analyses the condition of credit unions (Polish abbr. SKOK). Their liquidity and profitability is examined based on the indicators that inform about, inter alia, assets held by these institutions, their structure and liquidity, solvency, financial result, as well as the deposits and loans portfolio32.

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Table 2. Selected indicators reflecting the condition of groups of entities in the banking sector

<table>
<thead>
<tr>
<th>in %</th>
<th>entities</th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Q3</td>
<td>Q4</td>
</tr>
<tr>
<td>Return on Assets (ROA)</td>
<td>banking sector</td>
<td>0.82</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>domestic commercial banks</td>
<td>1.15</td>
<td>1.11</td>
</tr>
<tr>
<td></td>
<td>cooperative banks</td>
<td>0.82</td>
<td>0.75</td>
</tr>
<tr>
<td>Return on Equity (ROE)</td>
<td>banking sector</td>
<td>12.2</td>
<td>11.8</td>
</tr>
<tr>
<td></td>
<td>domestic commercial banks</td>
<td>12.4</td>
<td>12.0</td>
</tr>
<tr>
<td></td>
<td>cooperative banks</td>
<td>8.9</td>
<td>8.3</td>
</tr>
<tr>
<td>Net Interest Margin (NIM)</td>
<td>banking sector</td>
<td>2.61</td>
<td>2.50</td>
</tr>
<tr>
<td></td>
<td>domestic commercial banks</td>
<td>2.59</td>
<td>2.46</td>
</tr>
<tr>
<td></td>
<td>cooperative banks</td>
<td>3.4</td>
<td>3.35</td>
</tr>
<tr>
<td>Operating costs to net income from banking activity (CTI)</td>
<td>banking sector</td>
<td>52.1</td>
<td>51.8</td>
</tr>
<tr>
<td></td>
<td>domestic commercial banks</td>
<td>49.6</td>
<td>49.3</td>
</tr>
<tr>
<td></td>
<td>cooperative banks</td>
<td>70.1</td>
<td>70.7</td>
</tr>
<tr>
<td>Funding gap</td>
<td>banking sector</td>
<td>8.7</td>
<td>6.9</td>
</tr>
<tr>
<td></td>
<td>domestic commercial banks</td>
<td>11.4</td>
<td>9.7</td>
</tr>
<tr>
<td></td>
<td>cooperative banks</td>
<td>–37.6</td>
<td>–40.2</td>
</tr>
<tr>
<td>Total capital ratio</td>
<td>banking sector</td>
<td>14.9</td>
<td>14.7</td>
</tr>
<tr>
<td></td>
<td>domestic commercial banks</td>
<td>14.9</td>
<td>14.6</td>
</tr>
<tr>
<td></td>
<td>cooperative banks</td>
<td>15.8</td>
<td>15.7</td>
</tr>
<tr>
<td>Financial leverage (multiple)</td>
<td>banking sector</td>
<td>11.13</td>
<td>11.27</td>
</tr>
<tr>
<td></td>
<td>domestic commercial banks</td>
<td>11.13</td>
<td>11.26</td>
</tr>
<tr>
<td></td>
<td>cooperative banks</td>
<td>10.88</td>
<td>11.12</td>
</tr>
</tbody>
</table>

Source: the authors’ own calculations based on tables from Sections 2.8., 2.9., and 2.10. of the NBP Financial Stability Report, February 2016, Financial Stability Department, NBP, Warszawa 2016, pp. 79–81.

The report on financial system stability also discusses the performance of non-credit financial institutions classified as insurance companies, investment funds management companies and investment funds, as well as pension fund management companies and open pension funds. Besides, it investigates inter-sector linkages of non-credit financial institutions.

When it comes to security, the report addresses the assessment of risk, including systemic risk, to the stability of the domestic financial system, especially the standing of the banking sector, the dominant component of the Polish financial system. The analysis includes simulations and stress tests. Finally, the report makes key
recommendations for the maintenance of financial system stability. Synthetically, they can be summarised in several bullet points below:\footnote{33 \textit{Financial Stability Report}, February 2016, Financial Stability Department, NBP, Warszawa 2016, pp. 133–135.}

- to avoid measures that might put the stability of the system at risk, primarily to reduce the risk of operations that impact FX mortgage portfolios, the risk of imposing additional taxes on financial institutions and the risk of regulatory new requirements and capital burden;
- further integrate cooperative and associating banks into institutional protection systems (IPS) and timely implementation of solutions that ensure their full operability;
- further restructuring of SKOK aimed at boosting the efficiency of the credit unions and increasing their capital reserves;
- to take account of potential increases in interest rates in banks lending policies, in particular for long-term loans;
- to pursue a prudential loan policy vis-à-vis the commercial real estate sector (offices, retail and service space);
- to take particular care of adequate assets liquidity in open-ended investment funds.

The \textit{NBP Financial Stability Report} is an elaborate document, which may be a source of comprehensive information about the stability of the financial system in Poland. Its great advantage is the attached database of source data available in spreadsheets that enable their further processing.

\section*{4. ECB Financial Stability Review}

The last one on the list of discussed studies is the \textit{Financial Stability Review} published by the European Central Bank since 2004 every six months. The report examines potential sources of risk and threats to the financial stability in the eurozone. Similarly to the NBP report discussed in Section 3 above, the Review is intended to promote knowledge about issues relevant to ensure financial system stability, in this case in the euro area, in the financial sector and to a broader stakeholder group. Thus, the document, being the source of information about the risks and weaknesses of the financial system, is a tool designed to prevent financial crises\footnote{34 \url{https://www.ecb.europa.eu/pub/fsr/html/index.en.html}, accessed on 20.09.2016.}.

Remarkably, the review stresses that financial stability is understood as a state whereby the build-up of systemic risk is prevented. Systemic risk can derive from
three sources: the endogenous build-up of financial imbalances, usually associated with the booming business cycle, large aggregate shocks hitting the economy or the financial system, and mechanisms that transmit crises as a result of contagion effects. We need to stress that these terms, even if often used interchangeably to describe the propagation of crisis in the economy, put accents differently and have been explicitly defined and described in literature.

The above understanding of financial system stability in a way determines the analytical approach. Main substantial aggregates of the analysis and its layout reflect the logic of the mechanism, which proves that a crisis may come “from the outside”, disseminate across financial markets and financial sector stability is a safety buffer for the real economy.

Financial sector stability is composed of:

- an analysis of the macro-financial and credit environment considering, inter alia, external and political risks as well as the situation of households;
- an overview of financial markets stability;
- an analysis of financial institutions’ stability, including financial standing, stress tests and a synthesis of changes in the regulatory framework.

The report is highly informative when it comes to financial system stability because it is drafted from the perspective of the entire euro area. It means the analysis does not target the circumstances of individual countries but financial systems of the area comprising countries using the same currency. The report does not provide numerical data, which to an extent restricts the analysis and makes it difficult for a reader to further process the source material.

**Conclusion**

Financial system stability is desired and necessary for economic growth. Its loss may trigger the domino effect when interlinked risks materialise or come as the effect of such an impulse. Thus, efforts made to maintain stability increasingly more often turn into tools used by safety network institutions. Stability is also the subject of studies and analyses performed by analytical departments of such institutions.

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Financial system stability, i.e., its resilience to destabilising occurrences determines the overall robustness of the economy. Financial systems provide a safety buffer, which restricts systemic risk caused by crisis-inducing impulses generated by individual entities.

The literature review has led us to the following theoretical conclusions on financial system stability:

• financial system stability is a public good;
• a properly functioning financial system, also its stability, is crucial for the growth of any economy;
• disturbances originating from any component of the financial system may undermine its overall stability, which is why we need to take a systemic approach to the analysis of financial system stability;
• the stability of financial markets results from the synergy of regulatory framework, binding market solutions and principles of financial market arrangements and the financial market development.

As already noted stability is the ability of financial system institutions to constantly and sustainably perform their functions. Stability is the subject of studies of institutions within the safety network. Based on their overview we have drawn the following practical conclusions:

• as assumed by safety network institutions, the knowledge about issues vital for the stability of the financial system promoted among financial market actors enhances the stability of markets;
• informative relevance of documents produced by safety network institutions is substantial when reports are made available together with source data;
• substantive value of reports remains in line with their specificity, i.e.:
  – those which tackle regional or global markets do not inform about the circumstances in individual countries, hence their applicability in micro-analyses is rather limited;
  – those which refer to the stability of individual markets or economies are little useful for macro- or global analyses.

We need to bear in mind that in particular investment and speculation decisions are taken based on available information. Information and statistical efforts of financial institutions brought together in a safety network exert an impact upon participants to financial markets. They do so by generating reliable market data and making it available for further analyses. The final outcome should improve financial system stability in the common interest of its actors and stakeholders.
Bibliography


Waldemar Rogowski  
Collegium of Business Administration  
Warsaw School of Economics

Deferred Payment, Late Payment,  
Payment Backlog and How They Are Interconnected (the first of two articles about payment delays)

Abstract

The paper discusses the problem of payment delays in commercial B2B transactions and payment backlogs resulting from them. It also aims at identifying linkages among deferred payments, late payments, and payment backlogs taking account of the scale of these phenomena in Poland, as well as in other countries. Besides, it presents the results of studies on payment delays published in three most important international reports of the following companies: Bisnode D&B, Atradius, Intrum Justitia. The analysis confirmed that a payment delay as such is neutral but it may become negative as a result of the stance taken by an entrepreneur-creditor, who experiences a late payment. Payment delay becomes a negative phenomenon only when the creditor does not approve of such a situation. However, it remains neutral to an entrepreneur who accepts payment delays. Thus, a payment delay is a feature rather than a functional defect of the trade credit market. Since the problem of payment delays and payment backlogs is a pertinent one, it needs to be discussed in specialist literature. The paper provides recommendations as to what should be done to reduce the scale of these negative phenomena.
Keywords: trade credit, deferred payment, late payment, payment delay, payment backlog, counteracting payment delays and backlogs

JEL Codes: G 32 G 33, and G 35

Introduction

Deferred payment terms are a typical strategy applied to B2B transactions; in the EU Member States almost 50% of B2B trade is covered by deferred payment schemes, which, unfortunately, produces the risk of untimely payment or non-payment, a classic credit risk. For many enterprises in Poland offering deferred payment terms to their business partners is an inherent element of their everyday practice, which determines the risk of their business. The absence of timely payments is a reason for many problems of enterprises as it often leads to payment backlogs and bankruptcy. Payment backlogs tend to grow at a geometric rate and they produce the domino effect by causing financial distress to an increasingly bigger number of enterprises. As rightly observed by P. Masiukiewicz, non-observance of the terms of payment in commercial transactions is a negative part of the contemporary market game, where rules are dictated by more powerful players and payment backlogs seriously impede business operations of enterprises in many countries in Europe. According to the Report by Bisnode Dun & Bradstreet, in 2016 on average 62% of entrepreneurs in Europe reported late payments. The percentage for Poland was 57.5%. In 2016 as many as 27.9% enterprises signalled problems in paying their liabilities caused by payment delays in their accounts receivable. While according to the Report of Atradius for the same year, 24% of companies in Western Europe had to delay paying their liabilities because their B2B customers did not pay on time and created a payment backlog. In the report by Bisnode Dun & Bradstreet for 2016, we read that out of 19 European countries covered by the analysis payment delays got reduced in only 9 of them

compared to 2015 but only in 6 by over 1 p.p.\(^5\) We need to stress that late payments and payment backlogs exert a negative or even highly destructive impact upon the performance of individual businesses, industries, sectors or economies. Consequently, they impede investments, hamper growth, and negatively impact employment, as well as other areas of social and economic life\(^6\). Over 50% of Polish companies declare that overdue accounts receivable pose a threat to their business\(^7\). On top of that, payment backlogs and late payments entail high operating costs. According to P. Białowolski and A. Łaszek, costs of late payments represent 6.3% of total annual expenses of Polish enterprises. The total annual cost entailed by payment delays exceeds PLN 100 bn\(^8\). However, researchers are interested mostly in trade credit (deferred payment) not in payment delays, which is confirmed by a very limited number of papers and studies on late payments. We may fully subscribe to J. Shopovski’s opinion, according to which although payment delays in commercial transactions pose real problems and may lead to serious consequences to companies, especially to SMEs, literature that analyses theoretical and practical aspects and comprehensively discusses this still pertinent and relevant problem is rather limited and scarce\(^9\). Against this background, studies conducted by P. Masiukiewicz under the grant: *Zatory płatnicze a ochrona praw wierzycieli* [Payment backlogs and protecting creditors’ rights] and P. Białowolski and A. Łaszek, *Zatory płatnicze duży problem dla małych firm* [Payment backlogs: A big problem for small enterprises] feature positively.

Yet the issue of late payments is extremely important for market participants and animators, both in Poland and in other countries. That is confirmed by the fact that late payments are systematically assessed by international companies: Bisnode D&B, Atradius, Intrum Justitia, who draft annual reports on the subject, as well as Polish Economic Information Offices, such as: BIG InfoMonitor SA, and KRD [Krajowy Rejestr Długów – the National Debt Register] BIG SA. Remarkably, most Polish scientific papers addressing late payments use data from these reports.

In summary, it remains a pertinent and attractive area of research explorations, both in theoretical (research) and practical (application) dimensions. The above

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premises were decisive for choosing this research area and identifying research problems.

The goal of the paper is to identify relationships among deferred payments, late payments and payment backlogs.

The paper proposes two main and two auxiliary theses. The main theses have been formulated as follows:

1. Late payments are natural aspects of offering deferred payment terms (trade credit) and can be found everywhere, independently of a country’s location, development level, regulations, culture, networks of business intelligence, credit offices or economic information bureaus.

2. There is a very strong multilevel cause and effect link between late payments and payment backlogs, which prevents us from unambiguously deciding whether payment backlog is a direct reason or a consequence of late payments.

The auxiliary theses read as follows:

3. In case of payment delays, the economic standing of an enterprise suffering from late payments is undermined not so much by the fact of the delay but by its duration and lack of a possibility of fully or partly recovering an overdue payment.

4. Late payments must be monitored continuously with respect to their scale and value.

Leading research methods applied when writing this paper include: an in-depth analysis of the subject-matter literature and an analysis of data from reports concerning payment behaviour in B2B transactions in Poland and in other countries. To assess the value and scale of late payments we will use data from three top and major surveys concerning payment delays in Europe: Atradius, Bisnode Dun & Bradstreet, and Intrum Justitia. These three reports will serve as a strong foundation for a comparative analysis of late payments at an international scale and will help us conclude whether the phenomenon in Poland is universal or specific by nature.

1. The Notion of Deferred Payment

When discussing the issue of late payments and payment backlogs (also payment gridlock) we primarily need to define the notion of deferred payment – trade credit. Such an order is a direct consequence of the fact that there is no late payment without trade credit since late payment is a negative effect of non-payment of a deferred payment at an earlier specified date. Commercial transaction is an essential attribute of any business activity. It involves two or more parties which cooperate with each other by exchanging goods or rendering services. The party who delivers goods or provides services – the creditor – is interested in receiving timely payment for goods
or services he/she has already delivered or provided. The debtor, on the other hand, is interested in an adequate quality of goods or services he/she is receiving. Moreover, goods and services are delivered mainly by economic entities to their customers who are also businesses or to public sector entities under the deferred payment scheme. In the course of the process, a supplier offers time to his/her clients to make the requested payment in accordance with the terms agreed by the parties or as laid down by the law.\(^{10}\)

The term *trade credit* is explicitly defined in the subject-matter literature and universally accepted as the one meaning *the deferral by one party to a commercial transaction* (the Seller) *of the payment date* (for the Buyer) *for goods sold or services provided*. Such a scheme is widely used in *B2B* as well as in *B2C* transactions being, however, a *much frequent arrangement in transactions between enterprises* (*B2B*). Thus, *deferred payment* is a key component of trade credit, since the payment is not effected before a commercial transaction takes place (when we would speak of an advanced payment or pre-payment) or at the very moment of the transaction (cash payment) but on a later date (after the Seller has complied with all the terms of the transaction). Payment deadline is also explicitly identified by, e.g., the date on the document (invoice) or the date set out in the contract.

The importance of trade credit as a source of financing current business operations by enterprises is confirmed, inter alia, by data of the Central Statistical Office of Poland [Polish abbr. GUS]. It demonstrates that as at the end of 2016 liabilities for supplies and services provided accounted for 48.3% of total short-term liabilities of Polish enterprises employing more than 9 people; for wholesale and retail trade, the proportion was as high as 64.3%.

<table>
<thead>
<tr>
<th>Sections:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A AGRICULTURE, FORESTRY AND FISHING</td>
<td>33.6%</td>
</tr>
<tr>
<td>B MINING AND QUARRYING</td>
<td>36.1%</td>
</tr>
<tr>
<td>C MANUFACTURING</td>
<td>52.6%</td>
</tr>
<tr>
<td>D ELECTRICITY, GAS STEAM AND AIR CONDITIONING SUPPLY</td>
<td>30.3%</td>
</tr>
<tr>
<td>E WATER SUPPLY, SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES</td>
<td>34.3%</td>
</tr>
<tr>
<td>F CONSTRUCTION</td>
<td>49.2%</td>
</tr>
</tbody>
</table>

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Still a significant although diminishing importance of deferred payment arrangements for actually receiving income from sales is demonstrated by data in Diagram 1. Every third Polish zloty paid for goods or services by domestic business partners in Poland in 2016 (survey conducted in 2017) was covered by a deferred payment arrangement.

Diagram 1. Percentage share of deferred payment scheme in total B2B sales to domestic and foreign customers, Poland 2012–2017

Granting trade credit is not the exclusive specificity of Polish enterprises. In other European countries trade credit is an accepted and common instrument used to support sales, even in the countries with a well-developed banking sector. In Europe, the share of trade credit in sales reaches ca. 43% (see Diagram 2).

**Diagram 2. Percentage share of deferred payment terms in total B2B sales to domestic customers in Europe in the period 2012–2017**


According to the survey conducted by E. Camerinelli and commissioned by ACCA (the Association of Chartered Certified Accountants) in 2014, the gross value of credit from suppliers (trade credit) in the supply chains of the world's biggest companies at any given moment may total $2.7 trillion (3.8% of the world GDP)\(^\text{11}\). Wilson (2014) estimates the total stock of trade credit outstanding on UK companies’ balance sheets at just over £402 billion (26% of GDP), and the flows of trade credit at 1.2 times the flows of bank lending to companies\(^\text{12}\). At the end of 2016 in Poland short-term trade liabilities of enterprises employing over 9 people reached PLN 378.8 bn. In relation to short-term bank loans, which totalled PLN 192.7 bn as at the end of December 2016, short-term trade liabilities were twice as high and represented 20% of 2016 GDP\(^\text{13}\).

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\(^\text{13}\) The author’s own calculations based on the PontInfo database.
Considering the importance of trade credit as a source of financing business activities, we need to mention one more aspect. Globally, SMEs receive more financing under short-term trade credit schemes than from bank loans. Contrary to a common belief, bigger enterprises with better and easier access to financing are net creditors to enterprises whose access to traditional bank lending or capital market (corporate bonds) is limited.

The number of days for which trade credit is granted differs widely across Europe from 18 days in Slovakia to as many as 51 days in Spain. Poland belongs to the group of countries where payments are deferred for a medium period, which, according to the survey conducted in 2017 by Intrum Justitia, amounted to 26 days in 2016.

The recent three years in Europe have witnessed meaningful changes when it comes to the length of trade credit. Yet, the phenomenon evolved in different directions. In some countries deferred payment periods got shortened, the most significantly in Italy (by 35 days) and Portugal (by 24 days), while in others they were extended, especially in Greece (by 18 days). Over the same period in Poland the length of trade credit was shortened by 6 days.

**Diagram 3. Changes in the number of days of deferred payments 2017 vs. 2015**

![Diagram showing changes in the number of days of deferred payments 2017 vs. 2015](image)


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Summing up, we may conclude that the relevance of trade credit for business operations of enterprises, on the one hand, combined with multidimensional nature and importance of consequences resulting from credit risk (noncompliance with the original date of the payment as a result of which it becomes a late payment), on the other hand, make the issue of reliable payment behaviour (business morality) the core aspect that should continuously attract the interest of business researchers and practitioners\textsuperscript{16}.

2. Late payment: The Notion

In the case of deferred payment, we may be faced with two situations:

1. The payment is made on the date stipulated in the contract – it is a *timely payment*, i.e. a payment made on the *payment due date*. A payment made on time is not a late payment.

2. *Late payment* is a payment that has not been made on time, i.e., a payment which involves a payment delay.

 Payment delay can be described as the amount of time that passes between the deadline for a payment originally agreed by the parties to a commercial transaction (e.g. in a contract) and the actual remittance of the payment that is due.

 Late payments can be divided into three groups:

1. *late payments which have been paid*, i.e. payments that have been made after the payment due date specified in the contract;

2. *late payments not yet paid* – payments for which the payment deadline has expired but have not been made yet; in this case, the term *overdue payment* seems much more appropriate;

3. *lost late payments* – are payments not yet made that have been overdue for a long time and have become uncollectible because the clients (debtors) supposed to make them have gone, e.g., bankrupt.

 Interestingly, the number of days involved in deferral differs across countries. There are countries where payment is made before the payment due date, such as, e.g., Bosnia & Herzegovina, where payments are made 6 days before the trade credit due date set out in the contract. The longest delay is observed in Portugal, where payment is made on average 20 days following the deadline specified in the contract.

The paper addresses only the payments made after the due date stipulated in the contract has expired, i.e. *late payments*. Hence, we skip the issue of payments deferred for long periods and paid on time, which sometimes in lay terms are erroneously interpreted as late payments and payment backlogs.

**Diagram 4. Number of days granted for deferred payments and days of delay in European countries in 2017**

![Diagram showing number of days granted for deferred payments and days of delay in European countries in 2017.](http://www.intrum.com)


The period after which companies receive the payment resulting from a transaction is determined by two factors: the period for which trade credit has been granted and the number of days sales outstanding. Companies must be the most patient in Portugal where they wait for invoice payment for up to 66 days due to the long period for which trade credit is extended and the number of days sales outstanding. In Greece the situation is similar, companies wait 63 days for the payment. This data confirms that deferred payment terms do not reduce payment delays. Remarkably, both countries represent the South of Europe, where cultural aspects overlap with current economic hardships. The shortest waiting periods are reported in Germany (19 days), Estonia (22), and Denmark (23), which results from the shortest deferral periods (ca. 20 days in these countries) and very short delays of 2 days in Estonia and Denmark or payments made before the due date as it is the case in Germany. Apparently, trade credit extended for a very short time does not lead to payment delays. Also in this instance, we can clearly see the link between economic situation and late payments. Obviously, the correlation between the two is positive.
Thus, we may conclude that the mere fact of granting trade credit (deferred payment) is not the reason for payment delays. It is only the pre-condition for late payment.

Diagram 5. Number of days in 2017 after which companies in different European countries actually receive the payment

![Diagram 5](image)


Diagram 6. Total waiting time for invoice payment in Europe and in Poland (domestic customers) in days

![Diagram 6](image)


A much more pessimistic outlook when it comes to the number of days involved in late payments and, by the same token, the total period for which companies must
wait to be paid is painted out by the Atradius survey. In 2017 the average waiting time for invoice payment in Western Europe was 58 days, in Eastern Europe 59 days, and in Poland 54 days.

The results of the survey conducted by Atradius reveal an interesting phenomenon observable for some years also in Poland: periods for which deferred payments are offered expand together with the number of days sales outstanding leading to a longer total time of waiting for invoice payment from 42 days in 2014 to 54 days in 2017.

Diagram 7. Number of days of deferred payment terms (maturity) and the number of days sales outstanding (domestic customers)


Until this point, we have presented the stance of entrepreneurs who do not accept delays in invoice payments. However, there is a big group of those who do not object to late payments although they are driven by different motivating factors. Their approach may be either forced or conscious. The forced approval of payment delays usually concerns situations when the power of parties to a transaction is imbalanced, such as when a micro-entrepreneur is not paid on time by a big multinational enterprise or a customer does not pay his/her supplier on time because, should the need arise, the customer may easily find another supplier while for the supplier he/she is a strategic partner to whom the supplier sells a substantial chunk of his/her production (big concentration of sales). The conscious approval of payment delays results from the assumption made by a supplier that his or her client, in return for assisting his/her liquidity, will be willing to continue to cooperate in the future and perhaps will place bigger orders. A supplier may accept extending payment terms if he/she sees his or her client's financial problems, which may be temporary (in which case he/she fears
of losing a client), cyclical (caused by a business downturn) or seasonal (resulting from the seasonality of a client’s business). Accepting payment delays may also result from good and long-lasting relations with a client who one has known well for years, which is why he/she accepts payment delays caused, in his or her opinion, by temporary problems (that usually happens in relations between micro-enterprises). Also, despite seeing financial problems of his/her client, a supplier may agree on payment delays hoping to protect the client against bankruptcy and expecting to collect as much as possible in the future. Fraud makes a separate category.

If we decide that a deferred payment is in fact a form of financing one’s business partner, its attractiveness may appeal to both parties. To the entity whose accounts payable have been deferred, it is a cheaper and more flexible solution than traditional bank loans, while its attractiveness to the party extending such an arrangement lies in legitimate expectations of further business cooperation. Thus, from the viewpoint of the extending party, tolerating late payments hoping for future collaboration is often a rational choice, similarly to further deferring invoice payment when the client is in financial difficulties. The above combination of economic incentives exacerbates late payment problems of the enterprises which offer deferred payment arrangements. Especially if the times of economic crisis or in less institutionally developed markets, tolerating payment delays occurs more frequently.

Summing up, we may conclude that the mere fact of delaying a payment is neutral by nature. Its negative aspect depends on the behaviour of the entrepreneur-creditor affected by a late payment. It becomes negative only when the creditor disapproves of such a situation while it remains neutral to entrepreneurs who accept the fact that invoice payment may be delayed. Thus, late payment is a feature rather than a functional shortcoming of the trade credit market.

3. Late Payments: The Scale and Scope

To get a real picture of late payments in the EU, we need to address the efficiency and reliability of how late payments are measured. Currently, applied research tools use data from direct interviews with companies (samples comprising only several hundred enterprises). In order to identify the size and scale of late payments in an economy we need to analyse untimely invoice payments at the level of individual businesses, which is infeasible in practice.

Nowadays, there are some methods used to identify late payments at a national level. Two major methodological approaches to measuring the volume and scale of late payments can be distinguished:
a) statistical quantitative methods (hard data), based on statistical data for a particular country;
b) qualitative methods (soft), based on the studies on a representative group of enterprises\(^\text{17}\).

If we want to analyse the scale and volume of late payments in Poland, we must always make reference to international comparisons. Otherwise, we will never be able to explicitly decide whether the proportion of late payments in Poland is high, medium or low and whether it is neutral and occurs in many countries or is very specific for Poland.

### 3.1. Atradius Survey

The survey conducted by Atradius in 2016 demonstrated that the share of companies which report late payment problems in European countries is very high and oscillates around almost 90%.

#### Diagram 8. Share of companies which are paid late by their business partners in the B2B model – Eastern and Western Europe

![Diagram 8](image_url)

**KEY:**
- Europa Zachodnia – Western Europe
- Europa Wschodnia – Eastern Europe


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\(^{17}\) P. Masiukiewicz, *Zatory płatnicze a ochrona praw wierzycieli*. Partial report no. III/2016 from the research, SGH, Warszawa 2017, p. 6
In the same survey, Poland scores very well against the rest of Europe. According to the results, a smaller share of enterprises reporting late payments can be found only in five European countries including Hungary, where the percentage is the lowest (75%). However, we need to note that the differences between countries are very slim.

Diagram 9. Share of companies which are paid late by their business partners in the B2B model in countries of Western and Eastern Europe, 2017

On top of that, the data provided by Atradius shows that the share of companies receiving late payments in Poland slightly increased. Noteworthy, in Greece the proportion of companies which report late payments dropped by almost 10 p.p.

3.2. Bisnode Dun & Bradstreet Survey

When analysing the latest Payment Barometer, which has been calculated since 1972 by Bisnode Dun & Bradstreet provider of business intelligence, we may compare late payments evolving in European countries and in 12 economies globally.

In North and Central America, payment morale has stabilised over the last year. In the United States in 2016 late payments were reported by 46.2% of companies compared to 45.8% in 2014. In Canada in 2016 the share of companies affected by payment delays was the highest 57.7%, while in Mexico it was 44.8%.
Payment morality in Asia is very much differentiated. There is a huge gap in timely payments between Taiwan and China or Hong Kong and the Philippines. In China, late payments were experienced by 74% of companies in 2016, meaning an increase of 4 p.p. compared to 2014. The highest payment morality in Asia is exhibited by Taiwan, where 72.2% of companies make timely payments. Entrepreneurs from the Philippines are the worst payers as only 12% of them pay their invoices on time.

Diagram 10. Share of companies experiencing late payments in different countries


Compared to Asia and America, in Europe the population of enterprises which do not pay their invoices on time is the biggest. Only 40% of companies in the Old Continent pay on time. However, payment morality differs a lot across Europe.

The lowest payment morality in Europe is exhibited by entrepreneurs in Romania (82.4% of enterprises make untimely payments), Portugal (80.5%), Bulgaria (76.3%), and Finland (73.2%). The best payers are entrepreneurs from Denmark (86.5% of timely payments) and Germany (81.7% pay on time). There is a group of countries where timely payments represent between 60% and 40%, which includes, inter alia, Poland, the Czech Republic, Slovenia, Hungary, the Netherlands, Spain, and, interestingly enough, Turkey.
Diagram 11. Share of companies which make timely payments and experienced late payments in 2016


3.3 European Payment Index of Intrum Justitia

The European Payment Index was developed by the Intrum Justitia company and is based on three elements, which together make up the main index. These three elements are:

- **payment morale** measured by comparing standard payment terms applied in contracts with clients to real payment dates;
- **late payment risk** measuring the risk with which late payment may occur;
- **late payment impact**, which assesses the impact of payment delays upon the financial standing of companies which do not receive payments on time, by weighing the negative consequences of late payments from customers.

The Index includes an overview of risk connected with payment delays in various European markets. When three components of the Index reach their minimum values, the main index is −2. The highest possible level of the main index is +2.18 The European Payment Index for Poland for 2017 presents a positive picture of the financial standing of Polish companies.

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Table 2. European Payment Risk Index in the period 2015–2017

<table>
<thead>
<tr>
<th>Description</th>
<th>Country</th>
<th>Score Interval</th>
<th>Description</th>
<th>Country</th>
<th>Score Interval</th>
<th>Description</th>
<th>Country</th>
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<td>Bosnia &amp; Herzegovina</td>
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The analysis of the European Payment Index for Poland suggests that it has been improving for the past 3 years, which reflects generally a very good performance of the Polish economy.

Diagram 12. Changes in the European Payment Risk Index over the period 2015–2017 for European countries


The research results presented above confirm that late payments continue to be an issue in Poland and in practically all the EU Member States as well as in Asia or North America.

4. Payment Backlog: The Notion

While the term trade credit is explicitly defined in the specialist literature, making it easy to decide what is a late payment or overdue payment, defining a payment backlog is a troublesome task. A payment backlog is directly linked with deferred payment but only when the latter is not paid on time and becomes a late payment. Not always, however, a late or overdue payment implies a payment backlog. The term “backlog” commonly used by decision makers, business and society does not refer directly to a late payment but to its consequences, which creates a serious additional problem with the definition.

To define a payment backlog, we must start with the identification of the consequences of a late payment. We may not use the term payment backlog to each late, overdue or even uncollectible payment. So what is a payment backlog? As argued by P. Masiukiewicz, a payment backlog in an economy should be interpreted as disorganisation.
of settlements (cascade-type accumulation of delays in paying one’s liabilities) between market actors caused by systemic economic, technical and operating reasons.

A backlog may be compared to a traffic jam when a car driving in front of us stops and blocks the road making us stop, as a result of which the car behind us is also forced to stop and the road is blocked with a “backlog of cars”. That explains only half of the notion, as the other half refers directly to a payment, which for a backlog to happen, must be delayed. As we have already concluded, a delay is a precondition for a payment backlog to occur, however, it does not suffice. To speak of a payment backlog, we need the primary (first) late payment to trigger the mechanism of subsequent payment delays in companies within a supply chain, which creates the domino effect, where all the subsequent tiles (late payments) fall starting from the first domino (late payment).

Payment backlog as we understand it is thus a market situation in which businesses use trade credit and an enterprise is unable to make its payments on time because its own invoices are not paid on time by other enterprises (business partners) irrespective of motivation followed by these enterprises when delaying the primary payment. Thus, we are not interested in the root-cause of the absence of a payment to an enterprise or in the reasons why companies delay their payments or what drives them to do so, but in negative consequences of such behaviour reflected in the domino effect (an enterprise which is not paid on time starts delaying payments to its business partners).

We may identify major determinants of risk of a payment backlog. Surely, they include the scale and scope of late payments. The bigger the scale or scope of late payments in terms of the number of companies, sectors or regions involved, the higher the risk of a payment backlog to occur. The time structure of late payments is another relevant determinant. The risk of a payment backlog increases significantly if a payment is overdue for more than 60 days. Another determinant that favours payment backlogs is a poorly operating banking sector, which, by reducing the availability of financing to companies that have not been paid on time, contributes to payment backlogs.

Another interesting aspect connected with payment backlogs is their link with insolvency and bankruptcy. An increasing number of insolvencies and bankruptcies in an economy increases the risk of a payment backlog.

Further, we need to consider payment backlogs in the light of their strong positive correlation with the business cycle. The risk of payment backlogs intensifies in an economic downturn and decreases in an expansion\(^\text{19}\).

The risk of a payment backlog has also got its sectoral dimension. Sectors with long supply chains or little diversification of the customer base, as well as sectors with high concentration of customers representing one and the same sector, e.g., automotive or construction companies, are much more exposed to the risk of payment backlogs.

The size of a business is also relevant to the risk of a payment backlog. Micro- and small companies are the most vulnerable, especially when their business partners are big companies often abusing their dominant position in the market and delay payments.

Attention should be drawn to one more aspect that impacts the risk of payment backlog: shadow economy. Enterprises in the sectors where the share of shadow economy is substantial (e.g. construction), are exposed to a much higher risk of payment backlogs.

5. Conclusion and Recommendations

As rightly observed by P. Białowolski and A. Łaszek, when formulating recommendations with a view to reduce negative effects of late payments and payment backlogs linked with them, we need to bear in mind some vital facts, which are influenced by:

1. market factors;
2. specific reasons for late payments and payment backlogs;
3. companies infecting one another with the late payment “virus” causing a “disease” that takes the shape of a payment backlog, which in its extreme form may be fatal and cause the “death” of an enterprise, that is to its insolvency and bankruptcy proceedings;
4. legal regulations20.

1. Market factors:

   Firstly: late payments are a natural element of a dynamic economy that grows using trade credit as an instrument of transaction financing. Naturally, when a payment term is deferred, some of such payments will not only be late or become overdue but may even never be paid at all.

   Secondly: disputes between a supplier and a customer over the quality of services provided are also natural and it would be naive to think that each and every supplied product will be of the quality as stipulated in the contract and, thus, each payment under a specific contract will be paid on time.

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20 P. Białowolski, i A. Łaszek, Zatory płatnicze…, op.cit., p. 41
Thirdly: enterprises as part of their market game may purposefully get involved in business relations with more risky business partners, hoping for increasing their market share more quickly by accepting a higher credit risk. All of the foregoing indicates that economic administration should not strive for the elimination of all of late payments, but limit the negative consequences thereof and ensure conditions and access to information, which will help entrepreneurs make informed decisions on approving of a higher risk in business relations with less credible partners.

2. Specific reasons for late payments and payment backlogs
There is a wide variety of reasons for late payments and their frequency and relevance to individual economies, sectors or companies of different sizes also varies. Having in mind divergent reasons for delaying payments ranging from disputes over the quality of goods, through administrative errors up to purposeful payment delays, we are unable to indicate one common and universal solution to the problem of payments delayed by more than 60 days (which pose the biggest threat to the creditor’s financial standing) or that of payment backlogs. Such activities must, obviously, be comprehensive to provide an integrated and internally coherent package of solutions.

3. Companies infecting one another with the late payment virus
Firstly: payment backlogs proliferate between companies integrated in cooperation chains. Having in mind a wide variety of reasons behind payment backlogs, we must remember that problems experienced by companies at one level of the value (supply) chain may easily get transmitted to their business partners, e.g., Tier 1 suppliers to the automotive sector, which are not paid on time by an automotive company and delay their payments to their own suppliers – Tier 2 the automotive sector.
Secondly: at this point we need to additionally mention the context surrounding the shadow economy. We must bear in mind that late payments and payment backlogs experienced by enterprises operating in the shadow economy may get transmitted to legitimate market actors.

4. Legal and organisational regulations
Payment backlogs may not be banned by law.
Firstly, some late or overdue payments are caused by a higher risk taken by an enterprise, which is an inherent component of any economic process. One may not forbid the bankruptcy of inefficient businesses in a market economy (only in a centrally planned economy enterprises could not go bankrupt), as we cannot expect that someone (often the taxpayer) will be paying invoices issued by bankrupt enterprises.
Secondly, even if a business partner is not bankrupt, enterprises often do not want to sue to receive their late payments. They are mostly discouraged by protracted proceedings and long waiting periods in courts. Even in the countries with the best-performing judiciary, the average time within which disputes are resolved is much longer than the average payment delay. Besides, by suing a client and walking down the confrontational path, a company risks losing a business partner who, following an efficient restructuring, could come back to the market and continue his/her earlier business (the case of Polish company Monnari) making the legal efforts totally counterproductive\textsuperscript{21}.

With the above limitations in mind, when formulating general recommendations for actions that help reduce late payments and payment backlogs, we propose the following 10 detailed recommendations resulting from the analysis of late payments and payment backlogs:

1. Late payments and payment backlogs should be monitored continuously at the level of enterprises and the entire economy. To do this, we need a credible and comprehensive system within which data on late payments could be collected, processed and shared based on, e.g., mandatory reporting requirements F02 and F01 expanded with specific additional data concerning the time, scope (how many entities are involved), and sectoral (creditors and debtors) structure of late and overdue payments.

2. The government and its agencies should be more engaged in drafting and adopting regulations that would favour the intensification of data exchange by, e.g., introducing compulsory notification of unreliable debtors who delay their payments for over 60 days as it is the case with unpaid child support notified to debt registers run by courts and communes.

3. Intensive educational effort should be undertaken to improve knowledge, skills and competence among employers in Poland, especially in the SME sector, so that they could avail themselves of instruments preventing, protecting or mitigating the risk of late payment offered by BIG offices, business intelligence providers or insurance companies.

4. Business ethics principles are also worth promoting in the context of payment morality and in combination with the idea of corporate social responsibility (CSR).

5. Creditors should also be encouraged to notify the Debtors Register about the debtors who pay their liabilities on time (positive information), as a result of

which credible companies could be awarded and we would enjoy higher security of trade leading to a reduced scale of late payments.

6. The above recommendation links directly with dissemination, in particular among SMEs, of an idea to apply for certificates testifying to their high payment morale, such as, e.g., the BIG certificate “Firma Wiarygodna Finansowo” [EN: Financially Credible Partner], which testifies to high payment morale and confirms business reliability and trust.

7. Since nowadays the data describing payment performance of enterprises, their credibility and payment morale is fragmented, non-integrated and dispersed, which is why acquiring it entails high costs and requires a lot of time, the work on the integration of data sources based on the one gate to information concept should be intensified.

8. Adopting payment terms standards. Big differences in trade policies typical of individual industries also as to acceptable payment delays make the adoption of a universal and legally enforceable single payment term standard for all enterprises next to impossible. That has been demonstrated by some years of experience from the functioning of the Directive on combating late payment in commercial transactions. However, such standards could be worked out for individual industries as best practices they should stick to. In order not to restrict the freedom of contract and the freedom of business, these standards should be promoted as sectoral self-regulation instruments rather than statutory obligations. Such a solution would help companies make informed decisions about their cooperation with less reliable business partners.

9. Developing standards concerning the quality of goods and services and dispute resolution. Similarly to payment terms standards, quality standards should take the form of voluntary certification. Under a voluntary scheme, both suppliers and customers can decide whether they want to take the risk of trading with non-certified business partners.

10. Wide-scale awareness and educational campaigns to reduce the public acceptance for purposeful, intended payment delays (as highlighted in the report, this is one of the basic reasons why payments are delayed). Immoral behaviour cannot be eliminated by law, however, direct peer pressure may significantly restrict such harmful conduct.
Final Conclusion

In conclusion, we may note that both the Directive on combating late payments in commercial transactions and the Polish Act on payment deadlines in commercial transactions have not lived up to the expectations vested in them. Apparently, we should go even further in our conclusions and ask the necessary, although controversial, question whether regulations are the best tools to solve late payment issue in Europe.

What we need now are changes in companies’ payment behaviour and attitudes that would favour fair and sustainable growth. I am deeply convinced that voluntary, bottom-up initiatives of companies that oblige themselves to change their payment performance, preferring shorter payment terms, and avoiding payment delays are necessary and they should be supported and widely promoted and disseminated among the general public and in business community. In Poland, this task could be taken over by entrepreneurs’ associations, such as Lewiatan or BCC. There are models that can be used, e.g., the Prompt Payment Code in the United Kingdom inspired companies to voluntarily oblige themselves to pay on time. In Sweden, as a result of efforts made by Intrum Justitia, a code was drafted for Swedish companies which obliged themselves to make payments within 30 days in line with market practice.

This final conclusion is linked with a better promotion of the idea of socially responsible business, in which high payment morale is a vital component. The slogan which should constantly be remembered by all big and small enterprises in all sectors of the economy reads: “I am responsible and I pay on time”.

Bibliography


13. Act of 8 March 2013 on payment deadlines in commercial transactions, Dz.U. of 2013, item 403 with further amendments.


Effectiveness of State Supervision and Control of Foundations’ Economic Activity

Abstract

The construction of supervision and control of foundations and their economic activity in Poland is fairly well developed. The main goal of this research was to ascertain whether the procedure of supervision works effectively. It was also to highlight those supervision elements and stages that do not perform their role accurately and to indicate the reasons thereof. It is important to intensify the discussion on the change of the model of foundation supervision into a more effective system on the one hand, and less troublesome for entrepreneurs on the other. The research of this type has never been conducted through the cross-impact analysis. Every ministry presents only the analysis in relation to the foundations subordinated to them. There is no pooled analysis of the supervision state on economic activity of foundations in Poland, and in this respect, this study is a novel scientific contribution. The conclusion drawn from it points to a necessity for simplification, standardisation (a uniform foundation activity report form is not sufficient) and the introduction of instruments to affect the current foundations’ activity.

Keywords: state supervision, economic activity of foundation, starosts/ministry supervision, annual report, control

JEL Codes: K230, K400, H3
Introduction

The construction of supervision and control over foundations’ economic activity in Poland is fairly well developed. This research is to examine its effectiveness. It is also to highlight those elements which do not perform their role accurately, and the publication, as intended by the author, is to contribute to the discussion on the change of the model of supervision of foundations into a more effective system on the one hand, and less troublesome for entrepreneurs on the other. The research of this type has never been conducted through the cross-impact analysis. Every ministry presents only the research of foundations subordinated to them and even those are being done only partially. There is no integrated, complex analysis of the state supervision of foundations’ economic activity in Poland, and in this respect, this study is a new scientific contribution. The aim of this study was also to highlight the non-efficient stages and tools of supervision. Because of the divided construction of the supervision – between ministers and courts, it was important which of the two organs lacks activity in that system.

The Current State of Supervision and Control in Poland

Essential elements of the survey

The research made use of the historical and comparative as well as dogmatic methods to describe the legal state, and the analytical and empirical methods to conduct a survey.

The first stage examined whether the foundations fulfilled their reporting obligations. In order to do this, the researcher surveyed appropriate ministry units and auxiliarly used statistical data available on the ministries’ websites.

At first, it was examined how often the appointed institutions had used their authority in recent years (the survey referred to 2011 and 2012 as no data on 2013 were available). Primarily, it was examined:

1) whether the foundations met their obligation of annual reporting on their activity to the respective minister and whether the report followed the requirements defined in the Regulation on the framework scope of reports on the foundations’ activities, in particular whether they included all the required information on the economic activities;

Additionally, the survey asked the following questions:
2) whether a given minister audited the foundations in 2011 and 2012;
3) how often the respective ministers or starosts (local governors) apply to the court of law for the examination whether a given foundation operates in compliance with the law and the statute as well as its establishment objectives;
4) how often the respective ministers or starosts applied to the court of law for the repeal of a resolution made by the foundation management board and whether such applications resulted in the actual court verdict on repealing the foundation management board resolution;
5) how often the respective ministers or starosts addressed the foundation to remove irregularities in their management board activities or to effect changes in the foundation management board in due time;
6) how often the respective ministers or starosts applied to the court of law for the suspension of the foundation management board and the appointment of an official receiver and whether the court verdict was in line with the application.

The second stage of the survey examined whether the reports are subject to appropriate analyses in the respective ministries in the area of information about the economic activities conducted by foundations, and consequently whether the supervision is effective in its practical functioning. In this connection, it was examined whether there is an organisational unit in a ministry or at least one substantive employee dealing with the foundations’ reports, and also whether or not and how often the above-mentioned supervision measures with regard to management boards are applied in relation to the reports or irrespective of them. It was also examined whether the supervision measures affecting the management boards have anything in common with the management boards’ decisions on the foundation economic activities, in particular with the increased economic activity of the foundation, especially the economic activities on a large scale.

**Research results**

The ministers exercise supervision over 12,497 foundations. The number of foundations supervised by every minister is widely diversified.

The supervision over 70% of foundations is in the competencies of five ministers. These are: Minister of Culture and the National Heritage, Minister of Health, Minister of Labour and Social Policy, Minister of National Education and Minister of Environment.

The research was to indicate whether the supervision measures assigned to ministers are effective. For the most of the conducted survey, as well as the former research\(^1\)

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\(^1\) Cf. in particular *Nadzór nad fundacjami* (Foundations supervision), Warszawa 2013.
prove that a considerable number of foundations do not even fulfil the first stage of the supervision – that is the reporting duty (filling in the yearly report to the proper ministry).

There are a few reasons for that situation. Firstly, the obligation itself of publishing the reports should be formulated in a different, clearer way. It should simply be stated where exactly the report should be published. At present, it has to be sent to the proper ministry and published, without any clarification, when the requirement of publishing is met. Presently, it can be placed on foundations’ websites, and made generally accessible in this way. The report made available in a foundation’s headquarters is also regarded as published. Another obstacle to effective supervision is also the lack of deadline for the submission of the yearly report. Due to this, it has been assumed that a foundation may submit the report on its activity conducted in a calendar year by the end of the following year.

The default on report submission in due time or no information in the report indicating incorrect activities of a foundation should result in the response of the state administration supervisor. However, a serious hindrance is the practice of not updating information, e.g. on the change of the seat of a foundation or on board members in the National Court Register (KRS). It considerably obstructs the enforcement of fulfilment of foundations’ reporting duties.

According to the survey, the ministers do not possess a comprehensive knowledge of the operations of foundations supervised by them. Only six ministers ordered their staff to prepare overall periodic information on the supervised foundations. The Minister of Sport and Tourism, Minister of Treasury, Minister of Infrastructure and Development, Minister of National Defence, Minister of Environment and Minister of Labour and Social Policy receive such reports.

The research confirms that the present legal regulations actually retain a fictional state supervision of foundations, and the lack of information hinders a real ministry supervision. Ministers demand the change of regulations. The presented proposals are not uniform, though. The Minister of Infrastructure and Development and the Minister of Regional Development suggest the repeal of supervision of ministries over foundations. They support this concept claiming that foundations are not included in the list of public finance sector entities and their missions often go beyond the competence of one minister. They also claim that treasury offices, labour inspection institutions, the prosecutor’s office and courts of law can force all the foundations to obey the law.

The remaining ministers indicate the necessity for positive changes in the regulations on their supervision of foundations and giving them the tools which will allow for the real supervision of these physical persons. In particular, there is a strong need
for the change in the rules of reporting information by foundations and introducing sanctions for neglecting the term for submitting the report.

**Supervision effectiveness**

The analysis of the survey carried out by the author and the results of examination conducted in the ministries commissioned by the Prime Minister’s Office\(^2\), explicitly indicate how seldom the ministers implement a formalised and periodic assessment of operation of the subordinated and supervised entities. And if it is done, it refers to the operation of entities within the financial sector or is formulated on the basis of conclusions resulting from the conducted audits. Although 14 out of all 17 ministers stated that the responsible ministry units are obliged to present a formalised operational assessment of subordinated or supervised entities, the information actually refers to only a few entities or certain areas of their operation.

The lack of a formalised and complex assessment may impede the ministers’ supervision duties. Such an assessment would be important with regard to the duty of submitting statements on the state of management control in the areas managed by ministers introduced in 2010. According to the Regulation of the Minister of Finance of 2 December on the pattern of statement on the state of management control, it is submitted for example on the basis of monitoring of the state of implementation of goals and tasks.

The organisation of supervision affects mutual relations between the supervisor and the supervisee, and in particular the practice of sharing information between these two. Twelve ministers claimed that they could always obtain all the necessary supervision data. Five ministers informed about the cases of the negation of supervisor’s authority. The supervised entities explained the refusal to cooperate pointing to their independence and possession of the status of legal entity.

The lack of effectiveness in foundations’ supervision is recognised also by the Supreme Audit Office (NIK). According to the Office, the organisation of office work results in the lack of information flow between departments responsible for different supervision areas. The problem becomes especially significant if the departments responsible for the substantive and financial supervision are in the divisions of different undersecretaries of state. It causes, among other things, a longer procedure of acceptance of documents referring to a given unit.

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\(^2\) *Analysis of selected areas of supervision operation in the government administration*, Prime Minister’s Office, Warszawa 2012.
The results of research explicitly confirm that on average half of the foundations submit reports to the supervising ministries on time. The highest "reporting rate" is noted within the Ministry of Finance (75%), the lowest within the State Treasury (13%)\(^3\).

Characteristically, the number of foundations supervised by every ministry is really different: from several dozen up to several thousand entities. From among ministries responding to the survey at ngo.pl, the most foundations were supervised by: the Ministry of Health (2,600) and Ministry of Labour and Social Policy (2,457); the fewest foundations by ministries of Finance (40) and Treasury (46).

The highest "timely reporting rate" was noted by the Ministry of Finance. However, it supervises the fewest foundations. Documents were sent on time from 30 out of 40 supervised entities. The smallest number of timely reports (13%) were sent to the Treasury Ministry, which has also very few subordinated foundations. In between these two poles there are reports to the Ministry of National Defence (63% of foundations reported on time), Ministry of Agriculture and Rural Development (58%), Ministry of National Education (57%), Ministry of Regional Development (50%), Ministry of Foreign Affairs (48%), Ministry of Environment (47%), Ministry of the Interior (38%), Ministry of Transport, Construction and Maritime Economy (37%), Ministry of Health (36%), Ministry of Science and Higher Education (35%), Ministry of Labour and Social Policy (27%) and Ministry of Justice (26%). The spokesman for the last admits frankly that in the group of 124 supervised foundations, 24 have not submitted a report even once since they were registered. The Ministry of Culture and the National Heritage does not have overall information about the 2011 reports, only that for 2010. The Ministry of Administration and Digitisation after the assignment from the Ministry of the Interior, "obtained" foundations to supervise; according to the list on the ministry’s website there were 212 entities in 2014\(^4\).

The survey questions were left unanswered by the Ministry of Economy and the Ministry of Culture and the National Heritage. Admittedly, the Ministry of Sport and Tourism responded to the survey, but without declaring the number of supervised foundations.

In relation to the supervision and control of certain activities of foundations, i.e. business activities, theoretically the report construction according to the Regulation ensures its isolation from the statutory activities and clarity of classification with regard to incomes and costs of these activities. As already indicated, reports should include the following information on the economic activities: the scope of activity

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\(^{3}\) [http://wiadomosci.ngo.pl/strona/852460.html](http://wiadomosci.ngo.pl/strona/852460.html)

compliant with the entry in the National Court Register; achieved incomes together with sources; economic activities’ financial result as well as the percentage relation of income achieved from economic activities to the other sources; costs incurred on economic activity, data on the number of people employed in the foundation according to the positions held and isolation of those dealing exclusively with economic activities. However, the Law on Foundations and the Minister’s Regulation lack, and as shown in the research, so does the practice of ministries, systemised or actually any systems of practical implementation of supervisory activities. It is not clear for the ministers how often they can audit foundations and how many times they should ask them to make their reports complete by the data on the scope of economic activities, what supervision instruments to use when the reprimanded foundation keeps defaulting on its obligations. Apart from the ultimate measure in the form applying to the court of law for confirmation that a foundation operates against the legal regulations, which seems to be too strict for the lack of completion of certain data in the report or its incorrect completion, but there are no measures in between.

Conclusion

The study indicates that the Polish system of law does not include effective and fast supervision and control measures of economic activities conducted by foundations, and the supervision is inconsistent and ineffective. De lege ferenda, ministers should be equipped with tools allowing them to acquire current information on the supervised foundations. A rational deadline for the submission of an annual report on foundation activities should be fixed. The current deadline (until the end of the year following the one the report refers to) is too distant. It is not in favour of effective supervision as the information on what is happening in a foundation reaches the supervisor even with a yearly delay.

However, the Law on Foundations and the Minister’s Regulation as well as the practice of ministries lack, as shown in the research, systemised or actually any systems of practical implementation of supervisory activities. It is not clear for the ministers how often they can audit foundations and how many times they should make them complete their reports by the data on the scope of economic activities, what supervision instruments to use when the reprimanded foundation keeps defaulting on its obligations. Besides, the ultimate measure in the form applying to the court of law for establishing the foundation is working against law regulations, which seems to be too strict for the lack of completion of certain data in the report or incorrect completion, but there are no measures in between.
The research showed the necessity for the creation of uniform standards of supervision of foundations, including a uniform report form. The necessity for their development is emphasized by the ministers themselves, who identify them as an essential and desired support for the supervision activities.

Another problem indicated by the research is the lack of flow of information as foundations are not obliged to report on their resolutions to the supervisors immediately after making them. As a result, the supervisor does not know what is happening in the supervised foundation and cannot apply appropriate supervision measures at its disposal in due time.

The summary of the research presented remarks de lege ferenda concerning changes in the legal regulations on foundations’ supervision, including the economic activities conducted by foundations. It was underlined that the introduction of obligatory submission of reports in the same form in all the ministries would facilitate the work of supervisors as well as supervisees. This role is not performed by the Regulation itself; it would be sufficient, though, to enclose the report form to it. The Regulation only gives information to be disclosed in the report without proposing a unified report form. The introduction of such a unified form in all the ministries could result in more efficient analyses of reports and more reliable assessment. It would optimise human resources efficiency and give rise to a better possibility of the analysis of data submitted by all the foundations. It would also create a uniform supervision standard in all the ministries, which, as indicated in the research, is missing at present.

Another advantage for the supervisors would be to introduce a mechanism of information exchange between courts of law (KRS) and ministries concerning the obligation of passing information on changes in the data within the National Court Register.

Bibliography

1. Analysis of selected areas of operation of supervision in government administration, Prime Minister’s Office, Warszawa 2012.


3. Grzelońska U., Rola sektora non-profit w polskiej gospodarce (Role of the Non-Profit Sector in the Polish Economy), “Studia Ekonomiczne” 2011, no. 44.


Tobias Hagemann  
Europa University Viadrina / Mazars  
Frankfurt (Oder) / Berlin, Germany

Attribution of Profits Derived Before or After the Existence of a Permanent Establishment under Tax Treaty Law

Abstract

The attribution of profits to Permanent Establishments (PE) is one of the most discussed topics in international tax literature, the reason being that the attribution determines the amount of taxation in a PE state. Particular problems arise if such profits are derived before or after the existence of a PE. The article discusses the attribution of such profits under tax treaty law provided for by the OECD Model Tax Convention. In doing so, it is found that profits derived before or after the existence of a PE should be attributed to the PE because not only the wording but also the context and purpose of the OECD Model support this view. In further analysis, however, it is shown that slight changes in the attribution may be expected under the new “Authorized OECD Approach”.

Keywords: OECD Model, Permanent Establishment, profit attribution, Authorized OECD Approach
Introduction

If an enterprise maintains a Permanent Establishment (PE) in another state, the allocation of taxing rights for the profits of the enterprise requires the attribution of profits to the PE\(^1\). This task regularly brings with it practical issues regarding the portion of the profits that is attributable to the PE. An issue of particular relevance is the attribution of such income derived before or after the existence of the PE. Whereas it is generally accepted that a taxpayer must be a resident at the time the treaty is to be applied, it remains unclear to what extent the factual requirements of the distributive rules (Art. 6 through 22 of the OECD Model) need to be fulfilled at that moment\(^2\). As for PEs, this question becomes relevant due to the fact that the possibility of income derived before or after the existence of a PE is beyond doubt. For example, start-up costs may arise from legal consulting or from planning of the functions of the PE, or even from travel expenses for visits in the future PE state\(^3\). On the other hand, income may be derived after the termination of the PE due to subsequent price adjustments of income with regard to existing receivables of the PE\(^4\). Even profit determination based on the accrual principle may lead to income derived before or after the existence of the PE\(^5\). Although the possibility is not questioned, the issue of attribution of such income under tax treaties is “largely unexplored”\(^6\). Even the OECD was not able to offer a solution to this issue in its 2010 Report on the Attribution of Profits to Permanent Establishments (“PE Report”).

This article investigates the treatment of such income under the Tax Treaty Law as provided for by the OECD Model. In doing so, it will not only deal with attribution under the OECD Model in its original version (up to, and including, the 2010 Update), but also with potential implications through implementation of the Authorized OECD

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Approach (AOA). Particular aspects of the influence of the European Union Law, however, will not be addressed in this article.

1. Purpose and Justification of the PE Principle in Art. 7 of the OECD Model

Tax treaties govern the allocation of taxing rights for business profits under Art. 7 of the OECD Model by means of the so-called PE concept\(^7\). According to this principle, a state may only tax the profits of an enterprise of the other state if the enterprise carries on its business through a PE situated in its territory and, under such conditions, only the portion of the profits that is attributable to the PE. Under this rule, as is the case for distributive rules in general, taxation is justified based on the benefit principle\(^8\). According to the benefit principle, taxation is justified by the fact that a state supports the generation of income by providing public goods as well as its infrastructure to the taxpayer\(^9\). In case of an enterprise carrying on its business through a PE in the other state, the enterprise is participating in the economic life of that state\(^10\). Due to this intense connection to the territory of the host state, all of the profits may be taxed there\(^11\).

As for business activity in the host state, however, it must be considered that an enterprise can carry on its business in the other state without maintaining a PE there. According to the benefit principle, taxation may also be justified in this case because even then, the enterprise benefits from the public goods of that state\(^12\). Notwithstanding the latter, treaty practice regularly ties the taxing right for business profits to a PE being a fixed place of business. This fixed place of business aspect is based on two major considerations being certainty both for taxpayers and for tax officials on the one hand, and enforceability of tax liabilities on the other hand\(^13\). Insofar, the taxation based on the benefit principle becomes secondary to practicability aspects.

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\(^8\) See D. Dürrschmidt, op.cit., p. 619.


\(^12\) See with regard to the "genuine link", W. Schön, op.cit., p. 100.

2. Treatment of Income Derived Before or After the Existence of a PE under the OECD Model

2.1. No Further Guidance from the 2010 PE Report

Because the OECD provided for detailed guidance on profit attribution to PEs, one may seek to find a solution to the issue at hand in the 2010 PE Report\textsuperscript{14}. In fact, the problem of income derived before or after the existence of a PE was identified by the OECD, but without dealing with it by means of an in-depth analysis\textsuperscript{15}. Instead, the Report acknowledges that further work would be needed to arrive at a comprehensive consensus on this issue. Even though no solution was provided by the PE Report – the same applies, as far as it can be seen, to the OECD Commentary\textsuperscript{16} – the OECD finds it an appropriate approach to offset income with the expenses associated with generating such income\textsuperscript{17}. Whereas this statement does not seem to be a binding principle for interpreting a treaty, it can be supported by one of the purposes of tax treaties, i.e., to fairly distribute taxing rights between both contracting states\textsuperscript{18}. This purpose would hardly be fulfilled if one state taxed profits caused by a business activity while denying an offset of the expenses related to the activity.

2.2. The Present Tense of Art. 7 (1) of the OECD Model

In German-language literature, one argument against the attribution of income derived before or after the existence of a PE is that a taxing right of a host state requires an existent PE there\textsuperscript{19}. According to this view, start-up expenses can only be taxed in the state of residence since the conditions of Art. 7 (1) of the OECD Model,

\textsuperscript{17} See OECD, op.cit., Part I Tz. 221 et seq.
\textsuperscript{19} See e.g. F. Wassermeyer Die BFH-Rechtsprechung zur Betriebsstättenbesteuerung vor dem Hintergrund des § 1 Abs. 5 ASG und der BsGaV, “Internationales Steuerrecht” 2015b, p. 37 et seq; with further references; see also X. Ditz, in: J. Schönfeld, X. Ditz, op.cit., Art. 7 OECD–MC (2008) recital 185.
i.e., a PE in the other state, are not (yet) fulfilled. In the same manner and for the same reasons, income derived after the termination of a PE shall only be taxed in the state of residence. Consequently, the existence of a PE would cause a taxing right for the PE state only to the extent that the income is derived during the period of the existence of the PE.

In fact, starting with a literal interpretation, Art. 7(1) of the OECD Model might be understood to support this view because a source state taxing right is provided for if an enterprise “carries on” its business through a PE. This is not the case, however, if the enterprise “did carry on” or “will carry on” the business. Nonetheless, it is doubtful whether the use of the present tense should exclude taxation in the PE state if the income is not derived while the PE exists, the reason being that Art. 7(1) of the OECD Model restricts the taxing right of the other state “unless” a PE exists, not “as long as” a PE is maintained. Therefore, from a literal perspective, one may reasonably find that to “carry on” merely emphasizes the activity-based allocation of the taxing rights and, consequently, allocates to the PE state the taxing right for all the income derived therefrom. In this case, it would be the activity aspect rather than the time aspect which determines the allocation of the taxing right. Both interpretations could be supported by the purpose and justification of the PE principle. Limitation of the taxing right to those profits derived during the period of the existence of a PE would conform with the aspect that the PE threshold, i.e., the requirement of a fixed base, may allow the enforceability of tax liabilities. Such enforceability would be jeopardized if the PE was terminated in the meantime. On the other hand, the justification of an unrestricted taxing right of the PE state for business profits, i.e., the benefit principle, supports the view that taxation should not be limited with regard to timing aspects. If one agrees with the view that the purpose of the PE principle is the allocation of full taxing rights to the PE state if income is derived during the period of the existence of a PE, then the use of the present tense would bring about a similar effect.

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24 See also P. Plansky, op.cit., p. 195: strict wording.
25 See Rheinland-Pfalz Fiscal Court judgment of 16.09.2014, case 5 K 1717/13, EFG 2015, p. 188.
derived through a PE there\textsuperscript{28}, such an economic connection to the PE state should not be restricted by timing aspects. Instead, according to the benefit principle, the PE state should be allowed to tax all the income derived through the PE in its territory, even if it is derived after the termination of the PE. According to the latter view, the use of the present tense should only be interpreted in such a manner that a PE must be in existence when the relevant activity has been carried on. Consequently, the only restriction of the wording of Art. 7(1) of the OECD Model would be that a PE has to be existent eventually.

Since the literal interpretation seems to be open-ended, systematic and teleological aspects should be evaluated to resolve the issue.

2.3. Arguments from the Context of the Treaty

2.3.1. Comprehensive Taxing Right for a PE State

With regard to the taxing right for a potential PE state, the OECD Model not only provides for the right to tax the operating profits of a PE (Art. 7(1) of the OECD Model), but also for the taxing right with regard to gains from the disposition of movable property forming parts of the business property of the PE (Art. 13(2) of the OECD Model). This fact suggests that the OECD Model follows a comprehensive taxing right for a PE state\textsuperscript{29}. Against the background of the benefit principle, this result would be consistent because the PE state would be allowed to tax all the income (incl. hidden reserves) to which it has contributed with its infrastructure. For this reason, however, it would remain questionable whether the operating profits would also include such profits which were derived before or after the period of the existence of the PE. Proving this would require evidence derived from the context of the treaty. By means of contextual interpretation, as stipulated by Art. 31(1) of the Vienna Convention on the Law of Treaties, a cross-comparison of treaty provisions can help identify the meaning of one provision\textsuperscript{30}. As for the question discussed here, those treaty provisions dealing with activity-related income may be relied on because


\textsuperscript{29} Similar T. Hagemann, \textit{Freistellung für Gründungskosten einer festen Einrichtung?}, \textquotedblleft Steuer und Wirtschaft International\textquotedblright\ 2014, p. 516.

the same principles have to apply to them. The group of activity-related treaty provisions consists, among others, of Art. 7, Art. 15, and Art. 17 of the OECD Model.

### 2.3.2. Coverage of Subsequent Income

Art. 15(1) of the OECD Model governs the taxing right for income from employment “subject to the provisions of Articles 16, 18 and 19”. According to the prevailing view in literature, this statement expresses that Art. 18 or 19 of the OECD Model are to be given priority whenever the facts come under both provisions. This reservation only makes sense if income covered by Art. 18 or Art. 19 of the OECD Model may also be covered by Art. 15 of the OECD Model. Put differently, income paid “in consideration of past employment” as referred to in Art. 18 of the OECD Model may at the same time be qualified as income derived “with respect of an employment” under Art. 15(1) of the OECD Model. If this result holds true, then Art. 15 of the OECD Model without any doubt covers (subsequent) income derived after the (former) activity. Like Art. 7 of the OECD Model, Art. 15 of the OECD Model is phrased in the present tense (“is exercised”) regarding the allocation of taxing rights.

A comparison with Art. 17 of the OECD Model leads to similar findings. According to this provision, income derived by a person from activities as an entertainer or as a sportsperson “exercised” in one contracting state may be taxed there. Since the duration of the performance is usually short, neither the general allocation principles of Art. 7 nor those of Art. 15 of the OECD Model would grant the taxing right to the state where the activity is exercised. Therefore, Art. 17 of the OECD Model implements a strict activity-based allocation. Assuming that the condition for obtaining the taxing right would need to exist at the time when the tax is levied under Art. 17

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35 See also Art. 15 Tz. 2.2 OECD–Commentary 2014: „[...] regardless of when that income may be paid to, credited to or otherwise definitively acquired by the employee“.
of the OECD Model, the tax must have been levied during the performance of the activities. Consequently, Art. 17 of the OECD Model would regularly run idle\textsuperscript{37}.

2.3.3. Irrelevance of the Time of Income Derivation

The cross-comparison of treaty provisions seems to indicate that activity-related distributive rules allocate the taxing right regardless of when the tax is levied, if the activity has caused the respective income\textsuperscript{38}. Further, it would not seem plausible that contracting states should agree to allocate profits derived during the operation of the activity as well as gains from the alienation of the hidden reserves generated by the activity, but not to allocate the taxing right if such income would be derived at a time when the PE was terminated. Instead, it seems preferable to refer to the activity as the only allocation criterion\textsuperscript{39}. Consequently, the taxing right for all the income derived by an activity should be granted without time restrictions to the contracting state in which the activity is exercised under the required conditions (e.g., through a PE).

2.4. Teleological Aspects Regarding Preceding or Subsequent Income of a PE

According to Art. 31(1) VCLT, a treaty is also to be read in light of its objective and purpose. The main purpose of a tax treaty is the avoidance of double taxation\textsuperscript{40}. From this – general – purpose, it does not appear at a first glance that much guidance can be derived for allocation of preceding or subsequent income. However, since the aim of a common interpretation of a treaty is derived from this purpose, which corresponds to an interpretation reflecting the common international understanding, one may attempt to find arguments in the legal practice of other states\textsuperscript{41}. Support


\textsuperscript{39} See also J. Schuch, op.cit., p. 162; M. Schenk, P. Oesterhelt, op.cit., p. 907, D. Dürrschmidt, op.cit., p. 619.

\textsuperscript{40} See only J. Schönfeld, N. Häck, in: J. Schönfeld, X. Ditz, op.cit., Systematik recital 1.

for the possibility of allocating to a PE profits derived before or after the time of its existence can be found in legal practice in Germany, the Netherlands, Norway, Austria, and Switzerland. Furthermore, a respective understanding is expressively embedded in the U.S. Model. Insofar, the author presumes to find that in any case, the possibility to allocate subsequent income is not unknown in international tax treaty practice and, hence, might be cautiously supported by the aim for a common interpretation as a form of teleological interpretation. Although these references concern subsequent income of a PE, there seems to be a convincing case for not proceeding differently when allocating income derived before the existence of a PE.

Even from the abstract viewpoint of the goal of avoiding double taxation, the approach of not restricting allocation based on timing aspects seems superior. It seems quite possible that income is recorded for tax purposes at different times in the two contracting states, which would automatically invoke potential conflicts of qualifications if timing issues were to influence the allocation of taxing rights. Therefore, it seems most plausible that a PE state should be allowed to tax all the profits from a PE regardless of the time when the tax is levied.

Furthermore, it is considered another purpose of the treaty to fairly allocate the taxing rights between both contracting states. Two arguments can be derived from this purpose. On the one hand, it is the justification of the taxing right of a PE state


44 See Higher Administrative Court judgment of 06.03.1984, case 83/14/0107; of 22.03.2000, case 97/13/0093; cited by P. Plansky, op.cit., p. 195.


46 See Art. 7 section 5 US Model Income Tax Convention 2016: “In applying this Article, paragraph 8 of Article 10 (Dividends), paragraph 5 of Article 11 (Interest), paragraph 5 of Article 12 (Royalties), paragraph 3 of Article 13 (Gains) and paragraph 3 of Article 21 (Other Income), any income, profit or gain attributable to a permanent establishment during its existence is taxable in the Contracting State where such a permanent establishment is situated even if the payments are deferred until such a permanent establishment has ceased to exist.”

47 See also J. Schuch, op.cit., p. 173; G. Girlich, M. Philipp, Nachträgliche Betriebssstättensteuerpflichtin im Outbound-Fall, “Der Betrieb” 2015, p. 461.


based on the benefit principle. If income was derived through a PE in one state, i.e.,
by using the infrastructure and economy of this state, taxation is justified, whereas
no other result can be found by simply considering the time of taxation\(^\text{50}\). On the
other hand, income determination based on the accrual principle would establish
tax planning opportunities by steering payments so that those payments might be
derived before or after the existence of a PE. Furthermore, states might be inclined
to steer the allocation of taxing rights by their domestic law, assuming that their taxing
right is only restricted by the treaty if the income is derived during the period of the
existence of a PE\(^\text{51}\). Such results would clearly defy the purpose of fairly allocating
taxing rights between both states.

As for the benefit principle, however, one might oppose the idea that in the case of
preceding income such as start-up expenses, an activity does not yet exist and, hence,
in the absence of utilization of its infrastructure, a taxing right for the (future) PE state
is not justified. However, only the PE state is allowed to tax the profits of a PE once it
has been established\(^\text{52}\). Therefore, against the background of a fair allocation of taxing
rights, it remains unclear why the state of residence shall grant deduction for those
expenses incurred for the PE\(^\text{53}\). Instead, such deduction might lead to a unilateral
burden for the state of residence\(^\text{54}\). Furthermore, the charging of costs corresponds
to the arm’s length principle\(^\text{55}\), the reason being that an independent enterprise would
also be unwilling to bear the costs of another enterprise\(^\text{56}\). Accordingly, the allocation
of the start-up expenses to the PE (state) seems appropriate and even consistent with
the explanations of the OECD, which suggest that income be offset with the expenses
associated with generating it.

\(^{50}\) See also J. Schuch, op.cit., p. 189; another opinion: H.-K. Kroppen, in: D. Gosch, H.-K. Kroppen,
P. Grotherr, op.cit., Art. 7 OECD–MC recital 197, who reasons for the consideration of the costs in the
Head Office based on the arm’s length principle.

\(^{51}\) See also M. Lang, in: Festschrift für H. Flick, op.cit., p. 895 et seq.

\(^{52}\) See M. Schenk, P. Oesterhelt, op.cit., p. 907.

\(^{53}\) See also D. Gosch, in: Festgabe F. Wassermeyer, op.cit., p. 215.

\(^{54}\) See M. Lang, in: R. Bertl, A. Egger, W. Gassner, M. Lang, Verlustvorsorgen im Bilanz- und Steuer-

\(^{55}\) Siehe F. Wassermeyer, in: F. Wassermeyer, Doppelbesteuerung..., op.cit., Art. 7 OECD–MC recital
OECD–MC recital 190; S. Bendlinger, Die Betriebsstätte in der Praxis des Internationalen Steuerrechts,

\(^{56}\) See auch K. Buciek, in: H. Flick, F. Wassermeyer, M. Kempermann, op.cit., Art. 7 recital 214;
J. Schuch, op.cit., p. 178.
2.5. Interim Conclusion

Following the arguments outlined so far, PE profit allocation should not depend on the time when the income is derived. Instead, only the economic connection, expressed through a causal link between a PE and the income, should be determinative for allocation to a (future, present or former) PE. A significant criterion for the economic connection should be where the relevant activity is carried on. Therefore, all income is allocated to a PE to the extent that it is caused by an activity carried on in this or through this PE at the time of its existence. Consequently, this applies even in cases when income is derived before or after the existence of a PE. This approach corresponds to the benefit principle.

3. Generation of Preceding and Subsequent Income by a PE

The interim conclusion is that allocation of income to a PE depends on the required economic connection, which itself is expressed by causation. Since the causation principle is independent from time restrictions, the relevant question to ask must be whether income is caused by a PE, respectively the activity carried on therein. With regard to start-up costs, this approach may raise a different question: according to one view in literature, start-up costs for a PE are always caused by the Head Office. Another view assumes that a causal link can only exist if a PE is actually maintained, and functions are performed therein. Accordingly, causation of start-up expenses by the PE for which they were borne might be denied. Indeed, at a first glance, one might be inclined to apply a strict activity-based approach to determine the necessary causation link because Art. 7(1) of the OECD Model also allocates the taxing right based on activity. The activity dealing with the establishment of a PE, however, will usually be executed in the Head Office, even though the cause of this activity is the

59 See D. Smit, op.cit., p. 29(34).
62 See also T. Hagemann, DBA-Quellenstaatsregeln..., op.cit., p. 78.
planned PE. Hence, one has to ask whether Art. 7 of the OECD Model provides for a strict activity-related allocation or whether the relevant causation can be found either in the activity or in the existence of a PE. Up to, and including, the OECD Model 2008, Art. 7(3) provided for an approach that supports the latter view. According to this provision “in determining the profits of a permanent establishment, there shall be allowed as deductions expenses which are incurred for the purposes of the permanent establishment, including executive and general administrative expenses so incurred, whether in the State in which the permanent establishment is situated or elsewhere.” Even though this provision was eliminated, the obligation to allocate expenses to a PE is already mandated by Art. 7(2) of the OECD Model through the arm’s length principle and the “functionally separate entity” approach. Consequently, since a PE is the cause of the start-up expenses, the expenses should be regarded “incurred for the purposes” of the PE and should therefore be allocated to the PE.

The allocation of subsequent income is less complex. In general, subsequent income will be connected to the activity of a PE or, respectively, to assets arising from it, e.g., receivables. Consequently, such income would be considered to be caused by the PE’s activity and, therefore, allocated to the PE.

4. Irrelevance of Causation in Case of Sunk Start-up Expenses

According to the preliminary findings, allocation should follow causation, while causation is to be affirmed in case of start-up expenses of a PE. Based on these conclusions, the German Federal Fiscal Court found that start-up expenses are to be allocated to the PE state even if the set-up of the PE fails. Put differently, the Court allocated (negative) business income to the other state even though the PE was never maintained in that state. The author agrees with this decision insofar as the allocation to a PE should not depend on the existence of the PE at the time when the income is


64 Even though Art. 7 Abs. 3 OECD–MC 2008 was deleted, its content is mandated by Art. 7 Abs. 2 OECD–MC, see also M. Bennett, in: D. Weber, S. van Weeghel, The 2010 OECD Updates, Kluwer Law International, Alphen aan den Rijn 2011, p. 31.

derived (or the expense borne respectively) and to the extent that start-up expenses are caused by the planned PE. However, this does not automatically imply that causation itself is sufficient for the allocation of the taxing right to the other state. If an enterprise does business in the other state without maintaining a PE there, it would be beyond doubt that the other state is not allowed to tax the income. The same should apply to start-up expenses. If the set-up of the PE fails, the taxing right of the other state never exists. In that event, the expenses cannot be allocated to the PE there but must be allocated to the Head Office instead. This finding is not in conflict with allocating start-up expenses to a PE in case the PE is established later on because the OECD Commentary stipulates that if a PE is established, e.g., if the six-month period proves the required degree of permanency, the PE is assumed to exist from the moment the activity carried on in the PE begins\footnote{OECD Model Tax Convention on Income and on Capital (15 July 2014), Models IBFD, Commentary on Article 5 para. 6.3.}. Therefore, exceeding this time threshold retroactively triggers PE income for the time when it was not sure whether or not an activity would lead to the PE. The opposing view, i.e., the allocation of start-up expenses even in case of failure to establish a PE, overstrains the relevance of the attribution principle. This is so because the latter is part of the two-pronged PE principle consisting of the existence of a PE on the one hand, and the attribution of income to an existent PE on the other hand. This is clearly expressed by the wording of Art. 7(1) of the OECD Model requiring both the existence of a PE and the attribution of income. Overemphasizing the causation link would undermine the relevance of a PE. Indeed, since income can be earned in the other state without an existing PE, e.g., by means of a place of business which is not fixed in the meaning of Art. 5 of the OECD Model, the fixed place of business criterion obviously sets limits to the economic attribution principle for purposes of allocating taxing rights under Art. 7(1) of the OECD Model. Furthermore, if one considers that states will (likely) not perceive their taxing right until a PE exists, start-up expenses may neither be deductible in the state of residence nor in the other state. This situation would amount to a subset of double taxation and, hence, contradict the main purpose of the treaty\footnote{A. Cloer, A. Conrath Betriebsausgaben bei Gescheiterter Betriebsstättengründung im Drittland. Anmerkung zu FG Bremen, U. v. 14.06.2012–1 K 122/10, “Internationale Wirtschafts-Briefe” 2013, p. 451.}. Consequently, if no PE exists in the other state, the other state cannot tax any business income and therefore the taxing right is with the state of residence. This result is independent from the respective attribution approach.
5. Deviating Results under the Authorized OECD Approach?

5.1. Continued Validity of the Causation Principle

The 2010 update to the OECD Model fully implemented the AOA, which established both the so-called functionally separate entity approach and the allocation of risks, assets and, hence, profits based on significant people functions. The new concept has already been implemented in some states. Amongst others, the AOA is established in the treaty between Poland and the United States and in the new treaty between Poland and Germany. With regard to the allocation measure, it is assumed in literature that the AOA abandons the causation principle because allocation is now based on people functions.

The AOA is meant to implement an arm’s length approach in PE profit allocation. At least from the viewpoint of German scholarly literature, it has been shown that the arm’s length principle is closely connected to the causation principle. For instance, if expenses are comprehensively caused by the business activity of one enterprise, charging the expenses to this enterprise would be at arm’s length or, put differently, the arm’s length principle would require that this enterprise bear the expenses. Consequently, one should assume that income allocation based on the causation principle is mandated by the arm’s length approach, whereas this allocation may, in the individual case, not be derived by referring to the people functions. Therefore, the causation principle is not superseded through the implementation of the AOA.

5.2. Impacts of the AOA on Preceding Income

As mentioned above, major changes of the AOA include the functionally separate entity approach, which was introduced mainly to allow recognition of fictitious transactions (dealings), as well as the concept of people functions. If start-up expenses

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71 See also M. Bennett, in: D. Weber, S. van Weeghel, op.cit., p. 21(31): Art. 7(3) of the OECD Model war not considered to be needed any longer because the attribution of expenses to the PE stems from the separate entity approach and is already mandated by paragraph 2.
are borne in connection with the development or acquisition of assets that are transferred from the Head Office to a PE after its establishment, the transfer of assets can be regarded a dealing (see para. 70 of the Report) which would have to be charged at arm’s length. Therefore, the recognition of the dealing would ensure that start-up expenses are borne by the PE. In many cases, however, start-up expenses will be made in connection with, e.g., legal consulting, costs of recruitment, or marketing. Hence, such expenses may not be booked and later transferred as an asset. With regard to such start-up expenses, one may suggest that people functions regarding the set-up of a PE will usually be executed in the Head Office and, hence, the (negative) income related to the activities is to be allocated to the Head Office as well\(^72\). Put differently, in the absence of people functions in the PE, no income should be allocable. However, besides the argument discussed above, i.e., that expenses incurred for purposes of a PE are allocable to it, this understanding does not necessarily follow from the AOA. The 2010 PE Report assumes that a server can constitute a PE to which, notwithstanding the absence of any people functions performed therein, income may be allocated\(^73\). This result proves that one has to distinguish between the allocation of people functions relevant for the allocation of risks and intangible assets and, subsequently, relevant for allocating substantial parts of the profits on the one hand, and other factors relevant for the allocation of income on the other hand. Therefore, the author pleads for charging start-up expenses to a PE because this is what the arm’s length approach unambiguously requires. Nevertheless, the AOA could evoke changes: because the Head Office and a PE are to be regarded as separate entities, one could perceive that the Head Office renders start-up “services” to the PE and that therefore not only costs, but also a profit markup must be charged.

5.3. Effects of the AOA on Subsequent Income

In the author’s view, comparable results can be inferred for subsequent income, i.e., income derived after the termination of a PE. Usually, such income will be connected to assets (e.g., receivables) or liabilities (e.g., provisions being reversed). If a PE is terminated, the transfer of such assets and liabilities to the Head Office would constitute a fictitious sale from the PE to the Head Office. Consequently, the assets and liabilities as well as relating risks and opportunities would also be transferred to the Head Office. Therefore, subsequent income should be allocable to the Head Office. Even though this result seems to be contrary to the allocation based on the causation

\(^{72}\) See P. Schnorberger, M. Dust, op.cit., p. 608 et seq; see also G. Girlich, M. Philipp, op.cit., p. 461.

\(^{73}\) See OECD, op.cit., Part I Tz. 128.
principle, as explained above, it is consistent with the OECD approach to recognize fictitious transactions between the different parts of one enterprise\textsuperscript{74}. Furthermore, if one considers that the Head Office would recognize transferred risks (e.g., default on receivables) and opportunities (e.g., realization of hidden reserves) by calculating its price, this approach would even seem in accordance with the arm's length principle\textsuperscript{75}. By means of this price calculation, one may expect the results not to deviate much from the strict causation-based approach. This result is also consistent with the approach to book start-up expenses as assets because after transferring those assets, the new “allocation pole” bears risks and opportunities relating to the assets.

4. Procedure of Allocating Preceding and Subsequent Income

To bring home the results established here, one has to distinguish: on the one hand, it seems to comply with the arm's length approach not to sever the economic connection by timing issues. On the other hand, allocation is not possible if a PE does not exist because it was never established.

As for start-up expenses, this would imply that allocation cannot occur until a PE is established. When the realization of establishment is still uncertain, start-up expenses are to be allocated to the Head Office. At the moment of establishment, the start-up expenses are to be charged to the PE. Instead, it is suggested that the Head Office be allowed to participate in the profits of the PE as compensation\textsuperscript{76}. Even though both approaches may likely correspond\textsuperscript{77}, the latter view is not convincing for two reasons. First, the treaty solely provides for a legal basis for the attribution of the (negative) income to a PE, but not for the attribution of the (positive) PE income to the Head Office. Further, the participation in the profits of the PE would fail if the PE is never profitable\textsuperscript{78}. In the author’s view, it is preferable not to charge the start-up expenses until the moment of the establishment of a PE. Before a PE is established, typically only negative income is derived\textsuperscript{79}. Therefore, the recognition

\textsuperscript{74} See e.g. Ibidem, Part I Tz. 8.
\textsuperscript{76} For this F. Wassermeyer, in: F. Wassermeyer, Doppelbesteuerung…, op.cit., Art. 14 OECD–MC recital 5.5.
of the expenses in the PE state would not be possible before the establishment of the PE and, hence, may depend on domestic provisions regarding loss carry-forward. It would be more convincing to avoid such situations since tax treaties are construed to allocate taxing rights to states so that the states take into account the income.

As for subsequent income, the findings above may require the allocation of the income to the PE state, even if the PE was terminated. In case of negative subsequent income, recognition in the PE state would depend on loss carry-back provisions in the respective state. Even though this may lead to awkward situations for taxpayers, distinctions in allocation do not seem possible. Since each state quantifies its tax base autonomously, however, this result would not be in conflict with the treaty law, the reason being that non-recognition would then follow from domestic law.

**Conclusion**

According to the benefit principle, taxation in a PE state is justified by the fact that PE profits were earned by the utilization of the economy and the infrastructure of the PE state. Against this background, it is only consistent not to restrict the taxing right of the PE state if the PE does not yet, or no longer, exist at the time when the income is derived. Therefore, all the income connected to the PE should be taxable in the PE state without time restrictions. However, it is crucial that the PE exist at some point and that the income be caused by this existence or by the activities carried on in the PE during its existence. Hence, start-up expenses in connection with a failed PE are not to be allocated to the PE state, but to the Head Office instead. With regard to the AOA, these results may slightly change due to necessary profit mark-ups on charged costs as well as due to fictitious transactions which lead to a change in the allocation of assets and therefore, to the transfer of risks and opportunities relating to subsequent income.

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Bibliography


Judicial decisions

1. Federal Fiscal Court judgment of 12.10.1978, case I R 69/75, BStBl. II 1979, p. 64.
6. Higher Administrative Court judgment of 06.03.1984, case 83/14/0107, Tax Treaty Case Lase, IBFD Tax Research Platform.
8. Rheinland-Pfalz Fiscal Court judgment of 16.09.2014, case 5 K 1717/13, EFG 2015, p. 188.