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Contents

Preface ................................................................. 7

Wojciech Paprocki
Digital Economy as an Environment for Virtual Platform Operators ............... 11

Katarzyna Górak-Sosnowska, Michał Matusewicz, Irena Senator
Managing Students’ Affairs at Higher Education Institutions: A Qualitative
Analysis of Selected Tasks and Processes ....................................................... 27

Krzysztof Wach
What Determines Entrepreneurial Orientation of Polish Internationalized Firms? . 43

Olga Mikołajczyk
Professional Investment Standards in the Private Equity Sector: Selected Aspects . . 67

Giusy Chesini, Aleksandra Staniszewska
The Determinants of Dividend Policy: A Comparison between Firms Listed

Waldemar Rogowski
Payment Delays: Their Reasons, Scale and Consequences ............................. 91

Paweł Grunt
Structured Analytic Techniques: Taxonomy and Technique Selection for
Information and Intelligence Analysis Practitioners ................................. 115
Preface

Dear Reader,

We present you with the 30th 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 first article, "Digital Economy as an Environment for Virtual Platform Operators", Wojciech Paprocki claims that in the 3rd decade of the 21st century the hybrid system will be dominating in the world. The concept of "Industry 4.0" will be implemented in all regions but analogue processes will be still popular in the industry, distribution channels and households. Robots will become popular in the production and services. In management of data, information and knowledge solutions which are supported by the narrow artificial intelligence will be utilised step by step.

The aim of the next paper by Katarzyna Górk-Sosnowska, Michał Matusiewicz and Irena Senator, "Managing Students’ Affairs at Higher Education Institutions: A Qualitative Analysis of Selected Tasks and Processes", is to explore and analyse differences between dean’s offices in Poland. Basing on 26 individual in-depth interviews and visits to dean’s offices in Polish HEIs, the paper analyses organisation of work and selected core processes which are conducted at these units: processing students’ applications, removing from students’ lists, organising thesis defences, and organising examination schedules.

Krzysztof Wach in his paper “What Determines Entrepreneurial Orientation of Polish Internationalized Firms?” focuses on entrepreneurial orientation during the internationalisation process of the firm, which is one of the main research streams within international entrepreneurship. The main goal of the article is to discuss and
elaborate on the basics of international entrepreneurial orientation, its fundamentals and principles and to answer the question what determines entrepreneurial orientation of Polish internationalized firms. The paper presents the results of the survey based on the stratified random sampling of 355 Polish internationalized firms.

Olga Mikołajczyk in her article “Professional Investment Standards in Private Equity Sector: Selected Aspects” claims that investments made by private equity funds must abide by the highest ethical standards as the framework within which their stakeholders operate is very much based on broadly understood trust. The paper discusses selected professional standards, especially important for private equity transactions. It is based on the Professional Standards Handbook, a set of principles focusing on integrity and acting with fairness, keeping one’s promises, disclosing conflicts of interest, maintaining confidentiality, and promoting best practices for the benefit of sustainable investment and value creation.

Giusy Chesini and Aleksandra Staniszewska in their paper “The Determinants of Dividend Policy: A Comparison between Firms Listed on the Italian Stock Exchange and on the Warsaw Stock Exchange (2001–2014)” find that there are many differences between Italian and Polish dividend policies. In particular, dividend pay-out is mostly determined by dividend yield in Polish firms, while it is heavily influenced by other variables in Italian firms. In order to analyse this policy, they extract data from a wide sample of firms selected from the equity markets of the Italian and Polish stock exchanges. They use descriptive statistics and statistical regressions.

The paper “Payment Delays: Their Reasons, Scale and Consequences” by Waldemar Rogowski discusses theoretical and practical aspects of a relevant and pertinent issue of reasons behind late payments in B2B commercial transactions and their consequences. It aims at identifying the reasons for late payments and pinpointing their economic consequences and costs. It also addresses the scale of the phenomenon, especially for payments overdue by more than 60 days, considered the most dangerous for regular performance of enterprises. The paper provides the results of studies on these aspects quoted in three most important reports by the following companies: Bisnode D&B, Atradius, Intrum Justitia. It formulates conclusions on both the reasons and consequences of late payments in B2B commercial transactions.

Pawel Grunt in his article “Structured Analytic Techniques: Taxonomy and Technique Selection for Information and Intelligence Analysis Practitioners” proposes a new taxonomy and selection of structured analytic techniques for information and intelligence analysis practitioners. The presented taxonomy and selection of structured analytic techniques are based on the author’s experience in information and intelligence analysis as well as in training analysts in the use of those techniques. The
article concludes with a taxonomy and a selection of techniques for the information and intelligence analysis practitioners, based on a review of the literature augmented by the author’s professional experience.

We wish you a pleasant reading.

Ryszard Bartkowiak,
Chairman of the Scientific Council and Dean of the Faculty

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Digital Economy as an Environment for Virtual Platform Operators

Abstract

Digital economy that embraces the analogue and digital world has been developing for over the last ten years. The leaders of the digital economy are commercial and public virtual platform operators. In the 3rd decade of the 21st century, the hybrid system will be dominating in the world. The concept of “Industry 4.0” will be implemented in all regions, but analogue processes will be still popular in the industry, distribution channels and households. Robots will become popular in production and services. In the management of data, information and knowledge solutions which are supported by the narrow artificial intelligence will be utilised step by step. The goal is the creation of new wisdom. Virtual platform operators in their commercial and public activities will strengthen their position on the market in the New Space. At the same time the producers and service providers representing the Old Space will be pressed to accept dependence on virtual platform operators.

Keywords: data collection, market structure, information and knowledge, e-commerce, manufacturing and service industries, management of technological innovation and R&D  
Jel: C8, D4, D8, E81, O14, O32
Introduction

Dynamic changes in the economy require continuous monitoring of the condition of the social and economic system. Being part of current developments, we are unable to capture breakthrough moments. In 2017 we celebrated the 10th anniversary of the launch of the iPhone. The occasion encourages a deeper reflection over the importance of the smartphone, a multifunctional mobile device, for fundamental changes. Literature quotes increasingly more studies which analyse the shifting towards the digital economy\(^1\). This aspect should be further examined together with the behaviour of leaders of digital economy, i.e., virtual platform operators. The focus on virtual platform operators can be explained by admiration mixed with fear of their power expressed in literature and the media. There is an increasing awareness that over the last two decades the leaders, inter alia, Amazon, have been acquiring their dominant position in some market segments and in some regions of the world. Recognising the rationality of principles followed by Jeffrey Preston Bezos, Amazon’s founder, we need to remember rather a critical conclusion according to which “being customer-friendly is not the same as being community-friendly”\(^2\).

This paper discusses the digital economy as a new age of the socio-economic system and describes the conduct of commercial and public virtual platform operators. However, we have excluded the financial sector, where digital technologies are increasingly widely used. This explains why the sector operates differently from other sectors of the economy such as manufacturing, trade or services (other than the financial one). We also introduce the idea of economic revolution from the Old Space, i.e., from the exclusively analogue economy to the New Space, i.e., the economy that embraces the analogue and digital world.

In writing the paper the latest available literature and the Internet sources were used. The main research method included analysing cause and effect linkages in the economy and interpretation of development processes.

The first part explains basic terms used in the digital economy and the phenomenon of using data to collect information about the environment with a view to build up the knowledge base. Besides, we give examples of first experiences of applying artificial intelligence in hybrid economy. Virtual platform operators’ conduct is

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described in the second part, where we list American and Chinese leaders and present their most typical behaviour. The third part is a description of e-Residency project of public authorities in Estonia, who use digital technologies to attract foreign investors interested in developing the digital economy.

1. Digital Economy

The second decade of the 21st century witnesses the growth of global economy featured by the dissemination of more and more quickly improved technologies. The emerging digital economy can be treated as a new age of the social and economic system. It was preceded by the economy supported with ICT-based solutions. Since the 2nd half of the 20th century satellite links and systems of terminals on the Earth and in space have been used increasingly often to allow monitoring and controlling processes that take place across the globe and in the open space outside of our planet.

The launch of the iPhone 2G made by Apple3 can be considered the breakthrough moment. While until 2007 available technical solutions, the first smartphones manufactured in the last decade of the 20th century included, had not generated digital images “in any number and location”, since the iPhone was launched followed by smartphones of other brands modelled on it, databases can be expanded with images and sounds recorded on mobile devices. Three features have become important: richness, scope, and frequency of database updates. Google Earth platform established in 2005 is an example of shifting from the ICT-based to digital economy. Initially, the platform used only photographs of the Earth surface taken from satellites. When the platform opened to images taken with smartphones and transmitted immediately to a centralised database, its users could see many more photos taken “from the street” level and updated within very short periods of time.

Figure 1 presents five development stages of the economy. The first three of them: Old Economy, Tech Economy, and New Economy have been attributed to the age of the ICT-based economy. Further two stages cover the contemporary economy, which increasingly more avails itself of mobile applications (App Economy), and Hybrid Economy expected to materialise in the third decade of the 21st century. According to forecasts, in the hybrid economy businesses as well as public entities will be gaining increasingly bigger control over activities in virtual reality as a result of which their

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involvement in planning, execution and control over analogue processes on the one hand, and digital processes on the other hand, will get balanced\(^4\).

The main feature distinguishing the new digital economy from the previous stage consists in ensuring “on demand” access to integrated (managed in a pool) digital technology resources (\textit{hardware} and \textit{software}), i.e., to the cloud\(^5\). Universal connectivity is a feature of the digital economy, which opens up new opportunities but at the same time creates new threats. Through smartphones that have become available to the rich and poor worldwide, the connection to the cloud may take place “from anywhere and at any time”. With the perspective of the new mobile communication technology 5G in mind and its matching infrastructure to be deployed in 2020, we will witness a new technical environment for the growth of the digital economy across the globe, including Poland\(^6\). In accordance with the “Industry 4.0” idea, all business processes in the supply chain will be registered, starting from where raw materials are extracted up to the moment an ordered product is delivered by courier services to the


consumer. To this end we will be using all devices, stationary and mobile, capable of emitting data immediately through the cloud, from which data will be automatically acquired by systems that will register them, collect and process in accordance with planned algorithms. The Internet of Things (IoT) based on the cloud is an open system, offering incomparably greater opportunities than closed factory IT systems created in the past and used to, inter alia, control automated production lines.

**Fig. 2. Building up wisdom based on narrow artificial intelligence using data, information and knowledge generated automatically by algorithms developed by humans**

In 2017, ten years after the launch of the iPhone, we should examine the effects of technological development which, in accordance with the law of disruption, takes place at an increasing rate over time\(^7\). Undoubtedly, the latest achievements relate to the dissemination of solutions that apply narrow artificial intelligence. As a result of the access to abundant databases, automated contextual search and the use of data to generate information systems composed of terminals linked with the cloud can build up knowledge and apply it immediately. Figure 2 presents further stages of building up knowledge that has been acquired by systems based on algorithms developed by humans. There are already numerous examples where at the very last stage of data processing, systems generate specific “wisdom” which can be used if narrow artificial intelligence is applied. One of them is an intelligent system of voice

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\(^7\) Law of Disruption was discussed in more detail in: J. Hausner, W. Paprocki, *Firma-Idea oraz rozwój technologii a interwencjonizm*, Publication of the European Financial Congress, Sopot 2017, p. 74.
controlled apps for mobile devices applied by Amazon in the latest virtual solutions. They can be found in the second-generation Echo device and in “Fire HD 10” tablet offered as of October 2017. Regardless of technological advancements, human-to-machine (H2M) or machine-to-human (M2H) voice communication has not become widely disseminated. A breakthrough in this area is expected in several years to come, when the number of voice controlled interactions between humans and machines drastically exceeds visual and tactile interactions. Voice controlled solutions will be especially useful to, inter alia, pilots and drivers, who have to constantly keep their eyes on the road and are currently banned from using mobile devices which need to be looked at when in control of the vehicle.

Efficiency and effectiveness of new solutions involving digital technologies, artificial intelligence included, can be confirmed by many examples. Past years witnessed the propagation of non-cash payment schemes within which transactions are registered by all parties equipped with either stationary or mobile (e.g. smartphones) devices in near real time. When 5G mobile communication technology is implemented, already available driver assistance solutions will be used at a large scale and at prices close to those of an autonomous vehicle ensuring permanent and quick exchange of data between the vehicle and infrastructure through the cloud. Prospective dissemination of the mixed image referred to as augmented reality (AR) seems especially attractive. It is highly complex since it covers digital representation of the real world (analogue reality) and the digital projection (image) of virtual reality. Its attractiveness can be best observed in the creative industries which, as forecast, until 2025 will have remained the core consumers of AR technology. As of the 2nd half of the third decade of the 21st century, the technology will be mature enough to permeate other spheres of the economy. Radical reduction in the time and cost of industrial and architectural design is an especially valuable and expected benefit. Our experience so far has demonstrated that AR functionality depends equally on the faithfulness with which reality is presented and on credibility of the virtual image while both must be up to date. Increasingly wider use of digital maps, e.g., Google Maps, allows noticing that digital imaging, despite all efforts, is far from perfect. We can still see imperfections in mirroring analogue reality in digital records while perfect digital images illustrating virtual reality and referring to human imagination are more and

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more appreciated. The gap between what the real world looks like and how it is reflected in digital images makes various functions available on Google Glass little attractive. These devices equipped with especially developed IT systems placed on the market in 2012 were withdrawn from the consumer goods market in 2015 but they remained on the intermediate goods market for narrowly defined functions in logistics warehouses\textsuperscript{11}. Such experiences have contributed to the growing caution of experts trying to forecast the scope of AR application and analyse its deployment in the economy and in the consumer goods market. It has also restricted enthusiasm of fanatics of new technological solutions aired by the media whenever new creative industries’ solutions dedicated to consumers premiere at specialist fairs.

Observing the changes in the position in the global economic system of ICT-based businesses and businesses which mainly, or exclusively, apply digital technologies in their business model we may prove that in 2017 the second group started to dominate. It is illustrated by data in Table 1.

**Table 1. Stock market value of companies with the highest capitalisation in the USA in 2007 and in 2017 (in bn of euros)**

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>Value</th>
<th>2017</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Exxon Mobil</td>
<td>339</td>
<td>1</td>
<td>Apple</td>
</tr>
<tr>
<td>2</td>
<td>General Electric</td>
<td>291</td>
<td>2</td>
<td>Alphabet (Google)</td>
</tr>
<tr>
<td>3</td>
<td>Microsoft</td>
<td>222</td>
<td>3</td>
<td>Microsoft</td>
</tr>
<tr>
<td>4</td>
<td>Citigroup</td>
<td>207</td>
<td>4</td>
<td>Facebook</td>
</tr>
<tr>
<td>5</td>
<td>Gazprom</td>
<td>206</td>
<td>5</td>
<td>Amazon</td>
</tr>
<tr>
<td>6</td>
<td>Petrochina</td>
<td>193</td>
<td>6</td>
<td>Berkshire Hathaway</td>
</tr>
<tr>
<td>7</td>
<td>Industrial&amp;Commercial Bank China</td>
<td>190</td>
<td>7</td>
<td>Alibaba</td>
</tr>
<tr>
<td>8</td>
<td>Toyota</td>
<td>183</td>
<td>8</td>
<td>Tencent</td>
</tr>
<tr>
<td>9</td>
<td>Bank of America</td>
<td>182</td>
<td>9</td>
<td>Johnson&amp;Johnson</td>
</tr>
<tr>
<td>10</td>
<td>Shell</td>
<td>171</td>
<td>10</td>
<td>Exxon Mobil</td>
</tr>
<tr>
<td>...</td>
<td>Google</td>
<td>107</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>Apple</td>
<td>55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>Amazon</td>
<td>12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


In 2017 top ten of the above list was dominated with businesses representative of the App Economy. The first five among them are the so-called big five U.S. hi-tech giants followed by two leading Chinese companies (ranking 7th and 8th), developing digital technologies at an increasingly wider scale and expanding from huge domestic market to the global market. E-commerce sales reported by Alibaba in the fiscal year 2015/2016 testify to its growth. The revenue reached USD 482 bn, equivalent to the sales of Wal-Mart, the biggest traditional retailer chain in the United States in 2016. All of these companies have built and exploit virtual platforms to generate and manage economic processes in virtual reality, by which they have partly replaced previously analogue transactions and partly expanded their business model with mutually integrated processes executed simultaneously in real life and in virtual reality.

Since originally social and economic activities pursued both on the Earth and in space used analogue technologies, this stage can be referred to as the Old Space. The New Space can be used to describe social and economic activities, in which processes based on analogue technologies mix with processes that use digital technologies.

**Fig. 3. Old Space and New Space: the different scope and nature of social and economic activities before the digital economy and after its emergence**

![Diagram of Old Space and New Space](image)

Source: the author’s own research.

Figure 3 shows two models that illustrate the Old Space (model a) and the New Space (model b). The specificity of the New Space consists in the emergence of new

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areas of activity in the realm of digital processes. At the same time, some analogue processes are getting reduced because some of them, e.g., the majority of retail banking services have been replaced with on-line banking. In the cloud digital technologies and mobile devices register transactions directly in virtual accounts of business partners. By the same token, traditional services offered by traditional service providers, e.g., retail banks, are replaced with new services offered by businesses from outside of a given industry, such as Amazon or PayPal\textsuperscript{13}.

Ever wider use of the Internet can be a measure of the *New Space* acceptance by societies in different countries and regions of the world. The data illustrating the phenomenon is given in Table 2.

Table 2. Share of residents in selected countries for whom access to the Internet is a primary good (data for Q4 of 2016)

<table>
<thead>
<tr>
<th>Country</th>
<th>Share [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>82</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>77</td>
</tr>
<tr>
<td>China</td>
<td>76</td>
</tr>
<tr>
<td>Germany</td>
<td>73</td>
</tr>
<tr>
<td>USA</td>
<td>73</td>
</tr>
<tr>
<td>Russia</td>
<td>66</td>
</tr>
<tr>
<td>Spain</td>
<td>65</td>
</tr>
<tr>
<td>France</td>
<td>64</td>
</tr>
<tr>
<td>Italy</td>
<td>62</td>
</tr>
<tr>
<td>Japan</td>
<td>62</td>
</tr>
</tbody>
</table>


2. Modus Operandi of Virtual Platform Operators

Literature published over the decade 2007–2017, which addresses the emergence of the *New Space*, devoted most of its attention to the *digital factory*\textsuperscript{14} or to the


dissemination of the *Industry 4.0*\(^{15}\) idea. That is because the majority of businesses worldwide operate within the B2B (*business to business*) model. On top of that, much attention is given to the promotion of network robots whose population, e.g., in the U.S. industry increased in the first quarter of 2017 by 20%\(^{16}\). B2C (*business to consumer*) models bring together only these entities which either fully or substantially focus on direct relations with consumers. These are mainly trade organisations and some manufacturers of consumer goods. With the increase of e-commerce share in the sales of consumer goods, management sciences have only recently got interested in practices of virtual platform operators. The latter are highly effective in entering the consumer goods market and winning a dominant position on it. Thus, they may give a new shape to B2B and B2C models by, on the one hand, effectively tying consumers to themselves while, on the other hand, subordinating manufacturers by cutting them off from direct relations with consumers\(^{17}\). Following further expansion of American and Chinese giants listed in Table 1 we may analyse their conduct. This innovative behaviour that creates features typical of virtual platform operators merits our special attention.

**Table 3. Innovative behaviour of virtual platform operators**

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>New Space development is based on R&amp;D investing</em></td>
<td>Amazon was established in 1994. It is the biggest investor among private businesses in research and development; until mid-2017 its R&amp;D outlays reached USD 17.4 bn. In 2016 the investment resulted in 1,662 patent applications, 46% more than in the previous year(^{18}). Accumulation of capital achieved by market leaders allows investing bigger sums in technology than allocations from public funds in the most developed countries: the USA, China, EU Member States, India, Japan, Canada, and South Korea.</td>
</tr>
<tr>
<td><em>Big Data Analysis enables innovative identification of target groups</em></td>
<td>By investing in new digital technologies, market leaders may analyse huge databases of unstructured data (<em>Big Data Analysis</em>). Differently from traditional market segmentation methods, <em>Big Data Analysis</em> enables virtual platform operators who own huge databases of user data originating from those who use their applications to innovatively define target groups of potential customers. Market segmentation occurs through capturing customer preferences which could not be noticed without this method of market analysis(^{19}).</td>
</tr>
</tbody>
</table>

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### Behaviour

<table>
<thead>
<tr>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful e-commerce requires involvement in analogue processes</td>
</tr>
<tr>
<td>E-commerce leaders, e.g., Amazon(^{20}), as well as small start-ups, e.g., Viu(^{21}) optics provider, understand the need to be present in traditional distribution channels, i.e., traditional retail networks. They develop them from scratch or take over the existing chains to attract additional customers and foster their position vis-à-vis customers and suppliers.</td>
</tr>
<tr>
<td>“Own world” strategy on the technological services market is no longer effective</td>
</tr>
<tr>
<td>Facebook goes into the footsteps of Google and its YouTube service by creating an alternative Watch platform for shows where publishers can address their video advertising material to selected communities; settlement principles for Watch will be the same as for YouTube, i.e. 55% of advertising revenue goes to the rights holders (producers) and 45% to the virtual platform operator (Facebook or Google)(^{22}). Chrome, the web browser offered by Google, in 2016 enjoyed 63.2% market share globally and outperformed Microsoft, whose Internet Explorer’s share shrunk from 65.4% in 2009 to 9.3%(^{23}).</td>
</tr>
<tr>
<td>Virtual platform operator is valued above its prominent partners in the analogue economy</td>
</tr>
<tr>
<td>Market position of a virtual operator, also its valuation on the financial market, depends on the turnover and profit margin. The Priceline Group – an online travel agency (owned by Booking.com platform and Kayak) is valued at USD 100 bn – is an intermediary for hotel chains, such as: Marriott (valued at USD 40 bn, 1.2 m hotel rooms on offer in 30 hotel chains), Hilton (USD 20 bn), and Accor (USD 14 bn) and is paid up to 15% of the hotel rate, which in many cases exceeds the margin worked out by individual hotel chains(^{24}).</td>
</tr>
<tr>
<td>Sky is the limit – at very low costs of logistics in virtual reality global expansion may take several years</td>
</tr>
<tr>
<td>Since 2017 Netflix has offered film streaming in 190 countries across the world and has already won a 104 m client base reaching the turnover over USD 3 bn USD(^{25}). Films are made available in the virtual format and they are offered in limited language versions, which poses a specific “logistics barrier”. However, works on artificial intelligence may over a couple of years enable automated translation of dialogues and lyrics into any language, which will open up a market of such services to local communities where foreign languages are a rare skill or where people are illiterate. By publishing goods only in the digital format, operators are paid online and analogue processes are totally eradicated from the supply chain.</td>
</tr>
<tr>
<td>Analogue goods (products and services) can be sold at prices below their production cost if ancillary services can be sold in virtual reality at above the average margin</td>
</tr>
<tr>
<td>The Ryanair airline won the top leader position in the European market of passenger flights fighting extremely aggressive price wars with its competitors. Despite a successful cost reduction policy, the airline is unable to achieve satisfactory profitability of its primary activity. By investing in digital technologies Ryanair expanded its operations as a virtual platform operator used to sell ancillary services to travellers (e.g. hotel bookings, car rental, on board paid catering services, marketing and promotional campaigns for regional authorities interested in generating traffic in local airports). This ancillary revenue comes at a profit margin so high that the overall result is fully satisfactory(^{26}).</td>
</tr>
</tbody>
</table>

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\(^{26}\) *Digital transformation for airlines*, Comtrans, Dublin – Venlo 2016, p. 3.
Goods which could be available only in the digital format are also in demand in physical recording media. Streaming/Video on Demand-VoD of musical pieces and movies or rather their digital recordings could become the only format in which they are available. Yet, we can observe two phenomena: a limited propensity to give up CDs, DVDs/Blu-rays and a comeback to analogue sound recording techniques in studios and analogue sound carriers, i.e. black vinyl records. The main reason driving this “retro fashion” is the inferior quality of sound in digital recordings compared to the quality of improved analogue technologies. In the 1st half of 2017 in Germany 23% of listeners and 31% viewers declared they use physical recording media only. In the Czech Republic, near Prague the biggest vinyl record manufacturer globally increased its output to 65 k pieces daily in 2017, employing 1,400 people in three shifts.

Source: the author’s own research.

In behaviours listed in Table 3 the continuous pursuit for technology development features particularly strongly. Virtual platform operators who attract hundreds of millions of clients handle economic processes worth hundreds of billions of euros annually and can increase their R&D outlays year over year. This helps accelerate development work and shortens the launching of new generations of already applied solutions with the simultaneous multiplication of original solutions introduced into the economy. Leaders of the digital economy increasingly more often welcome the fast failure culture approach. Inside their own structures and in cooperation with start-ups across the world, virtual platform operators boldly engage in innovative projects to critically assess their outcomes at an early stage and decide on their continuation or suspension.

In the next decade of the 21st century, with the development of Hybrid Economy we will witness a growing pressure upon the strengthening of public supervision (at the EU or national level) over virtual platform operators. Over the period 2016–2017, one of the reasons behind such supervision when it comes to regulatory compliance and ethical content on Facebook was the understanding that many users of virtual services are vulnerable to destructive social developments orchestrated by monopolists of the contemporary media market in which they operate side by side in separate virtual channels. Moreover, it was realised that the digital world needs new rules of economic deal which would stop the expansion of virtual platform operators at sizes when they are able to block the competition of other market participants, including...

SMEs. In order to be effective on the global market, such activities require cooperation of authorities from the biggest number of countries possible.\(^{31}\)

### 3. Virtual Platform Operators in the Public Sector

Estonia is the global leader in public sector digitalisation. Its "e-Residency" programme goes far beyond the classical framework of digital technologies application in public administration (e-government) embodied in a package of measures specified in the Tallinn Declaration on e-Government.\(^{32}\) The Estonian programme seeks to develop the New Space by providing a virtual platform for business operated by the central administration of the country, which can be used by individuals, commercial and non-profit organisations. The programme is centred around awarding a virtual residency (e-residency) to those who register as business operators in compliance with Estonian law, subordinate to the decisions of Estonian public authorities, and pursue business using a virtual domicile within the EU Single Market.\(^{33}\) The main principle is “Welcome business, not bodies”. These businesses may be companies 100% online, i.e. not exhibiting any features typical of the real world, such as: the principal place of business or material assets and staff in the country of registration. By launching the programme, the Estonian government can be compared to the Chinese operator of Alibaba virtual platform.\(^{34}\) Expected partners are micro-enterprises, private individuals, as well as SME start-ups in virtual reality who use technologies offered by the operator. While Alibaba strives to expand its commercial operations on the global market, the Estonian government wants to use its advantage resulting from the advanced application of digital technologies to reap direct (e.g. increased income from taxes) and indirect (e.g. the multiplier effect) benefits, in other words, to boost demand for services provided by Estonian banks, commercial and service organisations. Experts believe that over 24k virtual businesses registered in mid-2017 may attract over 2m investors, many of them possibly from the UK as following Brexit they might be seeking a virtual residency in the EU and continue real life business operations in their country.\(^{35}\)

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Public authorities who want to operate in a way comparable to virtual platform operators offer the *Country as a Service (CaaS)* service. In this approach enterprises and entrepreneurs become consumers who, in accordance with the old principle “the Customer is the King”, are free to choose their service provider. In the *New Space* you do not need a real domicile so businesses, whether commercial or non-profit, may choose between e-residences of virtual countries which they consider the most attractive. The Estonian initiative typical of *Hybrid Economy* heralds a new age of competition between state administrations to win service recipients who look for an efficient and friendly public administration.

The public administration which assumes the role of a virtual platform operator may only follow in the footsteps of commercial operators. There is not a single country, especially with the population so small as Estonia, whose budget would allow developing new digital technologies. If, however, many countries, including all of the EU Member States, widely used the *e-Residency* programme, the business environment would greatly improve, in particular for SMEs. They would be able to establish “standard” virtual daughter companies governed by a unified set of international regulations to be able to locally make settlements and comply with reporting requirements in each and every country. Such a solution in the EU could be useful to monitor people whose professional activity goes beyond the borders of one country.

**Conclusion**

The *New Space* is a social and economic system which increasingly will be using digital technologies more broadly. Experiences of contemporary business leaders acting as virtual platform operators suggest that striking the right balance between analogue and digital processes is becoming a challenge. *Hybrid Economy* will probably be the basic form of digital economy in the third decade of the 21st century. It will comprise businesses, consumers and public authorities using analogue and digital technologies simultaneously. Thus, there will be still demand for skilful workforce in traditional occupations combined with increasing demand for specialists in new areas.

If virtual platform operators continue their market expansion, we will face a growing threat of using their dominant position to restrict the activities of other economic operators together with consumers’ freedom to choose. Thus, public authorities, expected to collaborate at a global scale, should put in place new regulations and deploy digital technologies to monitor the digital market.
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Managing Students’ Affairs at Higher Education Institutions: A Qualitative Analysis of Selected Tasks and Processes

ABSTRACT

Management of students’ affairs is a significant process supporting teaching at every higher education institution. Units responsible for this administrative task (mostly referred to as dean’s offices) not only monitor, verify, and document the educational process of each student, but also regulate some crucial aspects of formal teacher-student relations. While all dean’s offices serve the same purpose – i.e. provide administrative support to the teaching process – and work within a similar legal framework, they manage students’ affairs in different ways. The aim of the article is to explore and analyse these differences. Basing

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on 26 individual in-depth interviews and visits to dean’s offices in Polish HEIs the paper analyses the organisation of work and selected core processes which are conducted at these units: processing students’ applications, removing from students’ lists, organising thesis defences, and organising examination schedules.

**Keywords:** higher education, dean’s office, students’ affairs, management  
**JEL Code:** I230

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**Introduction**

Management of students’ affairs at the administrative level is a process often underestimated in and by higher education institutions (HEIs). Their main aim is to educate their students, i.e. provide them with knowledge, abilities and social skills. Thus, the most important issue is the content and quality of the educational process. Managing this process at the administrative level is definitely of a less rudimental nature, but still significant since it actually enables carrying out the educational process by verifying, monitoring and documenting the progress of each student. Moreover, the quality of students’ affairs management is one of the two most important components of how the overall quality of education is perceived with some researchers claiming that it is almost as important as the quality of teaching. It is because the unit responsible for managing students’ affairs serves as an intermediary between the students and the academics at HEIs.

The unit which is responsible for administration of students’ affairs related to their education at HEIs is the dean’s office. While there has been a lot of research focused on quality of education, dean’s offices as units responsible for the administrative burden of education (and thus also for its quality) remained beyond the scope of scientific interest. This article hopes to fill in this gap by exploring and analysing key processes of how students’ affairs are managed at Polish HEIs. The research is

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based on 29 individual in-depth interviews conducted by the authors with the heads of dean’s offices in selected Polish HEIs (see the attached list at the end of the article) in summer 2017. In order not to reveal specific procedures of dean’s offices, we have decided to code them basing on the following rules: non-public HEIs are coded with N, while public HEIs are split between universities (coded with U) and economic universities (coded with E).

The aim of the article is to explore and analyse differences between dean’s offices functioning in Polish universities. Basing on 29 individual in-depth interviews and visits to dean’s offices in Polish HEIs, the paper analyses the organisation of work and selected core processes which are conducted at these units: processing students’ applications, removing from students’ lists, organising thesis defences, and organising examination schedules.

Our basic assumption which enabled us to analyse and compare selected processes at different dean’s offices is that they share a lot in common: all of them provide administrative support of the educational process at HEIs and all work within a certain national legal framework. At the same time their work organisation and internal procedures differ between and even within HEIs. For further analysis we have selected these processes and procedures which fulfil three following criteria:

- They have been identified in the majority of dean’s offices (i.e. they are universal);
- They are carried out solely or mostly by the dean’s office itself (i.e. not in collaboration with other administrative units);
- They are complex (i.e. not single tasks like e.g. distribution of student IDs).

**Dean’s Office in HEI’s Structure**

There are three different models of placing dean’s offices in HEIs’ structure, which we have identified in the faculties that we visited:

- Faculty model – students’ affairs are managed by a dean’s office, i.e. in charge of all administrative affairs at the faculty. This model has been identified e.g. at E2, in which the dean’s office is responsible for managing affairs of the deans, a wide range of students’ and graduate services, managing post graduate studies, the support of academic staff, didactics, and the administration of institutes and departments, as they have no own secretaries. The complexity and scope of activities carried out by dean’s office E2 explains why students’ affairs are managed just by half of its staff.

- Dean’s office model – the basic task of the dean’s office is to manage students’ affairs. This model has been identified e.g. at N3 or N4. The scope of their tasks
differs depending on HEI, e.g. dean’s office U₈ is also responsible for the quality of education, course schedules and other issues related to didactics, while N₃ is not. In this case all dean’s office’s staff except for the head of the unit manage students’ affairs.

- Mixed model – students’ affairs are managed partly at the dean’s office, and partly at the departments and institutes responsible for BA and MA studies. This way the dean’s office of U₆ is organised: the dean’s office is responsible for general affairs for all the students at the faculty, such as scholarships, or international exchanges, while other issues related to the course of studies are managed at faculty departments or institutes. Around half of the staff at these units is responsible for managing students’ affairs, while at the dean’s office it is less than a half.

The first two models are centralised, and so all the processes are carried out for the whole faculty. The mixed model is partly decentralised with some processes conducted at the central level, while some others at departments and institutes.

### Size of the Dean’s Office

The dean’s offices in our sample differ not only in their structure, but also in size. The smallest one manages affairs of less than 2 thousand students, while the biggest – of almost 8 thousand. All but one dean’s offices run studies at both bachelor’s and master’s levels, with – in most cases – bachelor’s students comprising the majority of students. The number of staff varies from 4 to 21, while the number of employees managing students’ affairs varies from 3 to 13. Having the number of students and of staff one can calculate the average number of students per employee (keeping in mind that the scope of service differs between the dean’s offices). This average number can be calculated in two ways:

- depending on the time of studies – sometimes students might be divided between the employees according to whether they study full-time or part-time (i.e. at weekends);
- without any relation to the time of studies – then the employees manage affairs of the students who study the same major.

In the first case the average number of students per employee ranges from 202 (at N₄) to 605 (at U₈), with the average of 400 in case of full-time studies. In the case of part-time studies, it is from 61 (at E₉) to 512 (at U₂) with the average of 300. In all the offices but two the average number of part-time students per employee is 100–300 lower comparing to full-time students. The difference results from the fact that part-time students pay tuition fees and this also has to be managed by the dean’s
office employees. Thus, the employees who manage part-time students’ affairs have more responsibilities comparing to those who work with full-time students. In the second case (i.e. without dividing students between full-time and part-time ones) the average number of students per employee varies from 326 (at \( E_6 \)) to 700 (at \( N_5 \)).

**Working Hours**

In terms of working hours, dean’s offices are just as any other office, as the work starts at 7:30–8:00 and lasts till 15:30–16:00. Many offices have, moreover, afternoon office hours, and all but one – an extra working day on Saturdays for part-time students (a few of them are also open on Sundays, both public e.g. \( E_{12} \) and non-public ones, e.g. \( N_2 \)).

The offices are open for students 3–4 hours daily on average. In many cases the dean’s offices are closed for students for one working day; this is a day dedicated for internal office work, very much appreciated by the staff. This makes around 14–16 office hours a week (e.g. at \( E_{10} \) or \( E_4 \)). In some of them, office hours for students are much longer, almost as long as the working hours. Dean’s office \( N_4 \) is open 5 hours a day for 4 days and 7 hours at working weekends. Dean’s office \( E_6 \) is open even longer – 7 days a week, while students are served 6 hours every day (which makes 42 hours a week). The \( N_2 \) dean’s office is open 8 hours a day, 7 days a week, which makes in total 56 hours weekly and is the longest possible time.

**Overview of the Processes**

As indicated by different models of placing dean’s offices within the HEI structure, some of them are engaged into much more administrative work than just managing students’ affairs. In our research we have focused, however, only on administrative work related to students’ affairs. Some processes are common for all the offices, such as proceeding students’ applications, or preparing and issuing diplomas and supplements. All but one dean’s office organise thesis defences and all but two notify students about a possible removal from the list of students. Most of the dean’s offices deal with a number of students’ affairs including: monitoring students’ payments, internships, scholarships, foreign exchanges, and faculties’ website. Some offices organise schedules of examination sessions and confirm teaching hours for academics. Hardly any dean’s office prepares schedules of classes, accepts students’ payments, issues invoices or is responsible for recruitment.
In the following parts of the article we are going to analyse selected processes of students’ affairs management. We have decided to choose these processes for four reasons. Firstly, these processes are conducted in the majority or all of the offices. Secondly, they illustrate how work is organised. Thirdly, these processes are to a great extent universal for every student – there is a huge change, or almost certainty, that each student will get through them. Lastly, these processes are complex and combined of more than a single task. This way it is possible to see how work at a dean’s office is organised.

**Organisation of Work**

While all dean’s offices manage students’ affairs, the work is organised in different ways. Two main differences refer to: (1) ascribing (or not) students to particular student assistants at the dean’s office and (2) organising work in accordance with the premises of the dean’s office. In most dean’s offices, students’ affairs are managed by dedicated student assistants, i.e. the dean’s office employees get documents of concrete students and manage their affairs from the day of recruitment to their graduation and sending their files to the HEI’s archives. There are two ways of ascribing students to the employees:

- according to specialization – the employee manages affairs of students of a certain major, or year. This way the employee is specialized in this particular type or field of studies: e.g. at dean’s office U3 every employee is responsible for a particular year of studies, while at dean’s office U8 students are distributed between the employees according to the majors they study.
- According to the number of students – the employees manage affairs of a more or less similar number of students, regardless of their year or major. This way the employees are all-embracing and can substitute each other easily. This is the way that work is organised at dean’s office E4 due to the fact that no other distribution of students among the employees was possible.

At one dean’s office, N2, students are not ascribed to any particular student assistant, i.e. all the assistants care for all the students. All work is distributed between the employees by the head of the dean’s office. This way all the employees can perfectly substitute and replace each other, as student files are not ascribed to a particular employee, but to the dean’s office as a whole. However, it should be added that the faculty is very small with less than 2 thousand students and 6 employees so this type of work organisation could be possible.
When it comes to the premises, in the vast majority of the offices employees work in several rooms, located in proximity or separated only by an internal door. We have encountered two exceptions from this rule. At faculty N₃, the dean’s office premises are located on far sides of the hallway, which makes their management difficult, as the employees are located in different spots of the floor. Faculty U₉ has actually three separate dean’s offices (one for every major) with a room of a respective dean attached to the dean’s office. The head of them works in a separate room.

There are usually from 2 to 4 employees in one room. During office hours students enter the room and are served at their desks or at a counter. Other students wait for their turn in front of the door. It seems that premises linked with each other by an internal door are most functional – this way the employees can easily and quickly communicate with each other, while being located in separate rooms, rather than open space, gives them silence they need for their work. At the same time, it seems that being located in a separate room makes it hard for the employees to guess if the dean is around, unless (s)he comes to their room. That is why some deans have weekly office hours dedicated to their employees. Moreover, several dean’s offices introduced queue machines. Not only have these machines made the lives of the students easier, as they do not have to literally stand in a queue, but also of the dean’s office employees, as they know how many students they are going to serve, and they can distribute the work between themselves in a more efficient way.

Processing Students’ Applications

It would probably be an exaggeration to say that every student submits at least one application to the dean. Yet the applications are a formal channel of communication between students and the university. Through applications students apply for different things which are significant in the course of their studies, especially when it deviates from the original plan or programme (e.g. a conditional approval for the next semester, semester re-take, renewal of studies etc.). The applications are (1) submitted by students to the dean’s office, then (2) the decision is taken by the dean, and (3) communicated to the student by the respective student assistant. In this framework all the offices carry this process in the same manner – just as in the case of any other office or institution. The differences lay in the details of every of these steps.

In the case of submission of applications (1) a student usually submits it to his/her assistant at the dean’s office. At some faculties (U₉, E₄, N₁ and N₃) a student can leave his/her application in a mailbox attached to the dean’s office’s door, and so
(s)he does not have to queue. Applications are submitted in a written form, however, under some circumstances it is allowed to send the application scanned via e-mail (e.g. in N3 or U4). Some of HEIs, e.g. faculties N4, U7 or U5 introduced a system for submission of applications online. The whole process of proceeding the application is also online – the dean takes his/her decision online, it is also transmitted online to the student. The decision is then printed and put into the student's files.

Almost all the faculties introduced standardised application forms available on their websites. These forms fulfil two basic roles: they facilitate students in writing the application, and enable dean’s office employees easier control whether the form is complete and appropriate. Most offices introduced separate forms for different types of cases. Usually a form has a space for personal data, the addressee, and a template to fill in the request and its substantiation, and a space for a signature at the bottom. The most detailed form was prepared at U8 as the form is divided into layers – a student’s data and request are at the top, below there is a space for remarks of the dean’s office staff, later a space for the dean, and at the very bottom the student has to sign that (s)he acknowledged the decision. On the contrary, dean’s office N1 has just one universal form of application. There are all possible reasons for submitting the application listed and a student only needs to select the proper one and submit a substantiation, if needed. The student submits the application online, and gets the dean’s answer through extranet.

In some HEIs the applications are registered – either online as students submit them online, or in a paper registry. However, in many other HEIs the applications are not registered, only settled and put to student files. The most comprehensive but also demanding procedure is at faculty E6 where every single application has to be registered with a number and recorded in a dedicated system. Some faculties, including N1 and N3, developed a unique type of work division, with the office being divided between the front office and back office. The employees who sit at the front office collect the applications and transfer them to the back office, i.e. to the employees who register and process them. All the employees work interchangeably in the front and back office. This type of work division translates into higher efficiency – those who sit at the front office focus on student service, while those at the back office can work in silence. Moreover, this type of work division makes it possible to extend office hours, even though no employee works more than 4 hours a day at the front office.

Examination of applications (2) is proceeded at different levels of formality. Sometimes an essential condition is a written annotation of the respective student assistant (e.g. at U8). More often an annotation is only necessary if there are inconsistencies in the application, or a student’s case is complicated. In other cases, the application is simply passed on to the dean. At some offices the employees do not write any
annotations on students’ applications, only discuss all cases with the dean personally (e.g. at dean’s office U₆). Dean’s office N₂ has even more liberty as the head of the dean’s office sets with the dean the rules of conduct, and so the employees can communicate to the students how the application is going to be settled (if only the case is a standard one). Individual hard cases are settled during the dean’s office hours.

The decision (3) is communicated to the students in two different ways: proactive or reactive. In the first case the student receives the decision just after it has been taken, as soon as it is entered into the system (e.g. extranet or Virtual Dean’s office). In the second case the student has to learn about the decision by himself/herself. He/she can do it by phone, e-mail or personally. Students of faculties U₈ or E₁ need to sign that they have acknowledged the dean’s decision.

**Schedules of Examination Sessions**

Setting the time of examination sessions within the academic year does not depend on the dean’s office, even if it determines its work organisation: it is after the end of the examination session and time for its prolongation, when the dean’s office can proceed with semester decisions for all the students, and – if needed – allow them to conditionally enrol in the next semester or to retake a semester; if that is not possible, then it should remove them from the students’ list. Moreover, in the case of students who finish their classes, the dean’s office has to check all their courses and prepare their files for their thesis defence.

In most of the dean’s offices that we have visited, there are two examination sessions, and an additional time to prolong the session in motivated or documented cases. The first session starts around May/June, and the second in September (even though we have found one HEI which conducts the second session in July). If the second session is organised at the latest till the first half of September, it is possible to conclude all semester procedures before the start of the new academic year. Having the second session in early July (just like at faculty E₁₂) makes the things even smoother for all the parties – students, teachers, and the dean’s office. Students can still remember what they have learned in their courses, and can go for holidays knowing if they have passed all the exams or not. The teachers have to stay at the university anyway, since they have to participate in bachelor’s students’ thesis defences. The dean’s office can use the loose time to proceed all the paperwork and conclude the semesters of all the students. At some faculties, e.g. E₆, there is an extra earlier session for students who are about to graduate, so that they can focus on finishing their theses on time.
Removal from the List of Students

Removal from students’ lists is an administrative decision which has certain rules to be fulfilled. The differences between the dean’s offices lay, therefore, not in the merit, but in the way it is communicated and issued.

Almost all HEIs send notification about a possible removal from the list of students, which gives the students some time to react and respond. This time extends the whole procedure, as the notification has to be delivered by registered mail with a pick-up confirmation, and only after the notification is delivered one can start counting the time provided for students’ response. Only then, after two weeks, the student can be removed from the list. The procedure of removing students from the list consists of several phases:

- Some dean’s offices (e.g. E7) start by selecting the students who might be removed from the list of students and they try to get in touch with them. This way they can protect the students who forgot something from the procedure by pressing them to take action. On the extranet of dean’s office N2 there are alerts which remind students to follow all regulations related to the course of their studies on time. This way students are notoriously reminded, in case they miss something to complete the semester.

- The next step is the actual start of the procedure of removing a student from the list by sending a notification. One dean’s office (E1) sends written notifications in all possible cases, even in the case of re-taking a semester, or a conditional approval for the next semester. However, the vast majority sends these notifications only in the case of a possible removal from the students’ list. If the removal is to occur due to financial reasons, it is often the financial unit which provides the dean’s office with the list of students to be removed, or even sends the notifications on its own (this is the case of both public e.g. at E4, or E10 and non-public HEIs, e.g. N2 or N3).

- The last phase is the actual removal from the list of students.

Written notification about a possible removal from students’ lists is burdensome for dean’s office employees. Some faculties work on the possibility of sending these notifications via their internal Internet system. There is also one dean’s office (U6) which does not always send notifications – if a student cannot do anything to avoid being removed, then the notification is not sent, as it would be useless anyway.

Decisions of removal from students’ lists are not prepared at once, but rather depending on the reason for the removal. For instance, dean’s office E2 starts with removing the students who did not take part in the examination session, then those
who failed to obtain the proper number of ECTS, and finally it removes the students who did not start their studies. The dean’s office removes also the students for lacking payments and monitors the payments twice per semester. All the students have to be removed within a time frame set by the end of the examination session on one end, and by the reporting system of POL-on on the other end.

Organisation of Thesis Defences

The thesis defence is the last constituent of the process of studying and the ultimate condition to graduate. Organisation of thesis defences, preparation of diplomas and supplements belong to the responsibilities of dean’s offices. At some of them it is conducted by a separate unit (e.g. at E₄) while in others every employee prepares diplomas and supplements for his/her own students (e.g. at E₁₀).

Many offices organise two periods of theses defences – in June/July and in September (e.g. at E₁₀). Others organise just one period for theses defences, and if the student fails to submit the thesis on time (s)he is removed from the list of students (e.g. at U₃). The time of the defence is set in different ways – either the student is obliged to submit the thesis in a certain period of time before the defence takes place (e.g. 4 weeks ahead as at N₂, 2 weeks ahead as at E₁₀, or even 1 week ahead as at E₁₂), or the dean’s office is obliged to organise the defence within 3 months after the thesis has been submitted (e.g. at E₂).

The ways of setting the time of the defence vary between the dean’s offices. At dean’s office E₁₁ supervisors set the time at the dean’s office in a calendar in which available dates are marked. It is a small faculty with around 2 thousand students, which means around 700 defences yearly, provided that all students submit their thesis on time. The small number of defences is indicated by the fact that they are headed by the dean or vice-deans. Faculty E₁₂ is twice as big as E₁₁. The supervisors reserve a day for the defences of their students and basing on this the schedule is prepared. The time of the defence is set at E₃ when the student or the supervisor come to the dean’s office and ask for a specific date. An interesting way of setting the time of thesis defences has been developed at dean’s office U₇ – the supervisor organises the whole defence, i.e. sets the time and date with the reviewer, the student and the head of the commission. This date is communicated later to the dean’s office, which prepares all the relevant documents. Sometimes thesis defences are organised by the secretaries from the department or institute where the supervisor works. This also seems to be an efficient way, as the secretaries have better access to the supervisors and can set with them a date that suits all the defence
participants. It is also better for the supervisors to set the day with the secretary, rather than go to the dean's office.

As many of our interlocutors indicated, the thesis defence is rather a symbolic end of studies than a real exam, which eventually proves if a student shall graduate or not. For instance, at faculty E_{10} the defence lasts 15 minutes and consists only of questions related to the field of study (from a list of questions, or according to the supervisor's preferences). At U_{3} the defence lasts 30 minutes and there are two questions – from the major and from the thesis. Also in this case it is hardly imaginable that the student fails to pass. At U_{6} the defence lasts 20 minutes and comprises 2 questions from the thesis and one of 10 questions related to the field of studies available on the faculty's website.

It is worth stressing that students deliver their theses relatively fast, not only in the case of bachelor's studies, but also at the master's level. According to the head of dean's office E_{3} around 75% of students have their defence in June/July; at E_{3} it is around half of the students. However, at U_{6} most students defend their theses in September/October.

At two HEIs there is an additional level of quality control between the defence and issuing the diploma. At faculty E_{9} there is an extra control of student files, including the data on the diploma and the supplement before they are signed by the Rector and the dean. It is a formal control of the whole educational cycle and all necessary documents. At dean's office N_{2} each thesis is controlled by a commission after being submitted, approved by the supervisor and checked by the reviewer.

The virtual system of reviewing and submitting theses is a tool that smoothen's the whole process. The thesis is uploaded to the system and sent to the supervisor, who checks and approves it, and later to the reviewer. The review is prepared and sent online. A printed copy of the thesis and review are available at the defence and then signed by the supervisor and the reviewer. This procedure has been implemented at dean's office U_{6} and has made the whole process much more effective. A similar procedure is conducted at U_{8} – the topic of the thesis is accepted by the board of the faculty and entered into the system by a dean's office employee. The thesis is uploaded by the student. Then it is transferred to the supervisor and the reviewer; the first one checks it and forwards for a plagiarism check, while the latter writes a review. The student submits a printed thesis at the dean's office before the date of the defence.

Diplomas and supplements after the defence are prepared by students' assistants, or by a dedicated unit. In case of bigger faculties, the number of diplomas to prepare and issue is huge, so other employees help them with the workload. The supplements are printed at the dean's office, while diplomas ordered and printed outside of the dean's office, basing on the data submitted by the dean's office.
Conclusion

All the tasks and processes are carried out at the dean’s offices in different ways. Their work organisation results from internal regulations of HEIs and physical working conditions (e.g. available premises). HEIs’ authorities define the scope of work of the offices and to some extent define when these tasks are to be fulfilled. Recruitment limits set the number of students to be enrolled. HEIs’ infrastructure, premises, hardware and software define the way of work and the ability to carry out the tasks more or less effectively.

It is worth mentioning that some of the dean’s offices came up with ways and solutions to organise their work better and more efficiently. Some of these tools and methods could be implemented in other offices, but often it is not possible for reasons that lay beyond the dean’s office itself. In most cases it is an insufficient software, or HEIs’ procedures which make some of these solutions hard to implement.

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List of visited dean’s offices

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11. Jagiellonian University, Faculty of Philology, Institute of Romance Studies (Kraków, 12th July 2017);
12. Poznań University of Economics and Business, Faculty of Economics (Poznań, 21st July 2017);
13. Poznań University of Economics and Business, Faculty of Management (Poznań, 21st July 2017);
14. SWPS University of Social Sciences and Humanities (Wrocław, 10th July 2017);
15. SWPS University of Social Sciences and Humanities (Warsaw, 10th August 2017);
16. University of Economics in Katowice, Faculty of Economics (Katowice, 11th July 2017);
17. University of Economics in Katowice, Faculty of Finance and Insurance (Katowice, 11th July 2017);
18. University of Economics in Katowice, Faculty of Management (Katowice, 11th July 2017);
19. University of Lodz, Faculty of Economics and Sociology (Łódź, 27th July 2017);
20. University of Lodz, Faculty of Management (Łódź, 7th July 2017);
21. University of Silesia in Katowice, Faculty of Law and Administration (Katowice, 11th July 2017);
22. University of Social Sciences, Faculty of Management (Łódź, 12th June 2017);
23. University of Warsaw, Faculty of Economic Sciences (Warszawa, 21st June 2017);
24. University of Warsaw, Faculty of Geography and Regional Studies (Warszawa, 26th July 2017);
25. Wrocław University of Economics, Faculty of Economic Sciences (Wrocław, 10th July 2017);
26. Wrocław University of Economics, Faculty of Engineering and Economics (Wrocław, 10th July 2017);
27. WSB University (Chorzów, 11th July 2017);
28. WSB University (Poznań, 21st July 2017);
29. WSB University (Wrocław, 10th July 2017).
What Determines Entrepreneurial Orientation of Polish Internationalized Firms?¹

Abstract

This article focuses on entrepreneurial orientation during the internationalisation process of the firm, which is one of the main research streams within international entrepreneurship. The main goal of the article is to discuss and elaborate on the basics of international entrepreneurial orientation, its fundamentals and principles and to answer the question what determines entrepreneurial orientation of Polish internationalized firms. The paper presents the results of the survey based on stratified random sampling of 355 Polish internationalized firms. Applying $t$ statistics, the following results were observed. Firms having foreign branches or subsidies abroad are more entrepreneurial. Firms based on the local business domain are more entrepreneurial. High-tech firms are more entrepreneurial. High-growth firms are more entrepreneurial than firms which note traditional growth.

¹ The paper came into being within the research project OPUS 4 entitled Behaviour of Polish firms in the process of internationalisation from the international entrepreneurship perspective, which has been funded by the National Science Centre (NCN) on the basis of the decision no. DEC-2012/07/B/HS4/00701 in the years 2013–2018. This journal article is based on an unpublished conference paper presented at 2nd AIB-CEE Chapter Annual Conference in September 2015 at SGH Warsaw School of Economics.
dynamics. Hyper-growth firms are more entrepreneurial than other firms, also than high-growth companies. Innovative firms are more entrepreneurial. Strategically-orientated firms are more entrepreneurial. Firms cooperating in any networks are more entrepreneurial.

**Keywords:** entrepreneurial orientation, international entrepreneurship, internationalization of the firm, international entrepreneurship culture

**JEL Codes:** F23, M16, L26

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### 1. Introduction

This article focuses on entrepreneurial orientation during the internationalisation process of the firm, which is one of the main research streams within international entrepreneurship, which applies the entrepreneurship theory within international business studies. While internationalisation generally refers to any type of cross-border activities of firms and entrepreneurship is about the “identification and exploitation of entrepreneurial opportunities” focusing on innovation, novelty and value creation, thus international entrepreneurship has been conceptualised as “the discovery, enactment, evaluation and exploitation of opportunities – across national borders – to create future goods and services”. Determinants and factors contributing to fostering and blooming of international entrepreneurship are varied and multifaceted. International entrepreneurial culture or international entrepreneurial orientation is part of the multidimensional structure supporting and influencing international entrepreneurship from the cross-country and cross-culture perspective.

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The main goal of the article is to discuss and elaborate on the basics of international entrepreneurial orientation, its fundamentals and principles and to answer the question what determines entrepreneurial orientation of Polish internationalized firms.

2. Theoretical Background

In recent decades, both the theory of internationalisation of the firm and/or the theory of international business have developed. Recent developments in international business studies prove that entrepreneurial orientation (EO) emerges as one of the most important potential factors contributing to the intensification of the processes of internationalisation of the firm. Thus, the notion of international entrepreneurship (IE) has been flourishing as well. The general theory of entrepreneurship indicates that market opportunities are a common and dominant link of all entrepreneurial activities. The entrepreneurship theory refers to the identification or creation opportunities, their evaluation and exploitation. The expansion into new geographic markets is undoubtedly an important market opportunity for growth and development. Internationalisation as a response to the market opportunity takes diverse paths. Based on the in-depth literature search, this study aims to determine whether, why and how, in the context of diverse environmental conditions, the pursuit of market opportunities contributes to increasing the internationalisation of firms.

The literature review and the above-mentioned facts reveal that investigating the internationalisation process of firms from the perspective of the entrepreneurship theory, in terms of making use of entrepreneurial and innovation processes (stimulating the firm-level internationalisation), constitutes a new and blooming research domain for international entrepreneurship. It is crucial, form the perspective of entrepreneurship, to focus on entrepreneurial processes while studying business internationalisation.


2.1. Conceptualisation of Entrepreneurial Orientation

Entrepreneurship is an ambiguous and multi-faceted term\(^7\), however, entrepreneurship in its broad sense is understood as entrepreneurial orientation\(^8\), which first of all helps us to conceptualise entrepreneurship itself, and what is more, it also helps us apply the theory of entrepreneurship in the internationalisation and business studies much easier. Żur and Wałęga\(^9\) notice that two parallel terms coexist in academic writing regarding firm-level entrepreneurship, namely entrepreneurial orientation (EO) and corporate entrepreneurship (CE). Zahra\(^10\) as well as Dess and Lumpkin\(^11\) suggest that EO represents potential entrepreneurial intentions and attitudes of a firm, while CE represents actual entrepreneurial activities of a firm. Antoncic and Hisrich\(^12\) and many other authors believe that these two constructs complement each other.

There are many attempts to define EO, and various researchers offer their own insights on this issue, however they have one thing in common: they treat entrepreneurship as a firm-level phenomenon. Basso, Fayolle and Bouchard\(^13\) found that EO can be traced to the pioneering writings of Khandwalla\(^14\), and Miller\(^15\).

Miller\(^16\) and later Covin and Slevin\(^17\) introduced a three-dimensional concept of EO (a composite construct), represented by such qualities as (i) proactive, (ii) innovative, and (iii) risk taking behaviours of a firm. Lumpkin and Dess\(^18\) proposed a multidimensional construct in which (i) proactiveness, (ii) innovativeness, (iii) risk taking, (iv) competitive aggressiveness, and (v) autonomy are treated as independent

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\(^16\) Ibidem.


What Determines Entrepreneurial Orientation of Polish Internationalized Firms?

behavioural dimensions. Moreover, Covin and Lumpkin\textsuperscript{19} noted that these two concepts should be considered as different and separate perspectives, yet not competitive ones. However, most researchers apply the three-dimensional concept of EO (Table 1).

Table 1. The construct of EO: three- and multi-dimensional concept

<table>
<thead>
<tr>
<th>No.</th>
<th>Basic Dimensions</th>
<th>Composite Qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Proactiveness</td>
<td>– predicting future market changes (Rauch \textit{et al.}, 2009)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– opportunity creation vs. opportunity identification (Sundqvist, Kylaheiko &amp; Kuivalainen, 2012; Covin &amp; Slevin, 1989)</td>
</tr>
<tr>
<td>2</td>
<td>Innovativeness</td>
<td>– openness to new ideas (Frishammar &amp; Horte, 2007)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– process and product creativity (Dess &amp; Lumpkin, 2005)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– pursuit of creative or novel solutions (Knight, 2001)</td>
</tr>
<tr>
<td>3</td>
<td>Risk taking</td>
<td>– decisions in uncertainty (Dess &amp; Lumpkin, 2005)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– implementation of projects entailing significant chances of acostly failure (Davis \textit{et al.}, 1991; Khandwalla, 1977; Miller &amp; Friesen, 1984)</td>
</tr>
<tr>
<td></td>
<td>Competitive aggressiveness</td>
<td>– competitive advantage over competitors (Dess &amp; Lumpkin, 2005)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– aggressive posturing relative to competitors (Knight, 2001)</td>
</tr>
<tr>
<td>5</td>
<td>Autonomy</td>
<td>– independent human activities (Dess &amp; Lumpkin, 2005)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– self-acting (Lumpkin &amp; Dess, 1996)</td>
</tr>
</tbody>
</table>

Source: the author’s own study.

Most of the empirical research applies the EO scale proposed by Miller\textsuperscript{20} as well as Covin and Slevin\textsuperscript{21} measuring three dimensions of EO by nine items and using the 7-point Likert scale.

While discussing the theoretical construct of Entrepreneurial Orientation based on three dimensions, it is worth noting that the strict requirement of exhibiting high levels of each dimension in order to be recognized as an EO firm was significantly relaxed. Kreiser et al.\textsuperscript{22} as well as Lumpkin and Dess\textsuperscript{23} found that various levels of the three dimensions can equally shape EO of a given firm.


\textsuperscript{22} Kreiser et al. 2002.

2.2. International Entrepreneurial Orientation in International Firms

Covin and Miller\textsuperscript{24} hold that discussing the issue of international entrepreneurial orientation (IEO), it should be investigated with the relation to EO and IE. These definitional matters resulted in the in-depth study of the phenomenon of IEO by Covin and Miller\textsuperscript{25}. EO has been one of the main research themes within entrepreneurship for more than three decades, while its usage in international business studies is much younger. Kuivalainen, Sundqvist and Servais\textsuperscript{26} notice that “both home-country and an international entrepreneurial orientation (EO and IEO, correspondingly) could be seen as antecedents that explain growth strategy and performance differences in firms” in the international context.

As one of the first researchers, Knight\textsuperscript{27} tried to explore EO of firms operating across different cultures. While defining IE, McDougall and Oviatt\textsuperscript{28} focused on three elements, namely (i) innovative, (ii) proactive and (iii) risk taking behaviours, which applied the concept of EO. Covin and Miller\textsuperscript{29} (2014) stress that more recent definitions focus less explicitly on EO (Table 4). Most of the authors believe that IEO makes use of the three-dimensional concept of EO\textsuperscript{30} supplementing the international context of entrepreneurship and international business (Table 2).

Knight\textsuperscript{31} is convinced that the three-dimensional international entrepreneurial orientation is the major success factor determining the international performance of a firm (Table 3). The strategic behaviour theory is especially important for a firm operating in international markets where various environmental parameters

\textsuperscript{25} Ibidem.
pose special challenges to the entering firm. Two additional factors supporting international performance of firms are (i) internationalisation preparation entailing market research conducting or resources commitment to international operations and (ii) technology acquisition enabling a firm to acquire technologies that will augment its ability to compete in international markets by implementing innovative products and behaviours.

**Table 2. A chronicle development of selected definitions of IEO**

<table>
<thead>
<tr>
<th>IEO</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEO “reflects the firm’s overall pro-activeness and aggressiveness in its pursuit of international markets.”</td>
<td>(Knight, 2001, p. 159)</td>
</tr>
<tr>
<td>IEO reflects “the firm’s overall innovativeness and proactiveness in the pursuit of international markets. It is associated with innovativeness, managerial vision and proactive competitive posture.”</td>
<td>(Knight &amp; Cavusgil, 2004, p. 129)</td>
</tr>
<tr>
<td>IOE is “a set of attributes commonly acknowledged as helpful for overcoming obstacles in the internationalization process.”</td>
<td>(Jones &amp; Coviello, 2005)</td>
</tr>
<tr>
<td>IOE “refers to the behavior elements of a global orientation and captures top management’s propensity for risk taking, innovativeness, and proactiveness.”</td>
<td>(Freeman &amp; Cavusgil, 2007, p. 3)</td>
</tr>
<tr>
<td>IOE is “a set of behaviors associated with the potential creation of value, which manifest themselves as proactive and innovative methods, risk taking activity, autonomous actions, and an emphasis on outperforming rivals, all variously aimed at discovering, enacting, evaluating, and exploiting opportunities across national borders.”</td>
<td>(Sundqvist, Kylaheiko &amp; Kuivalainen, 2012, p. 205)</td>
</tr>
<tr>
<td>“IOE is not treated as a construct distinct from EO. Rather, ‘international’ is simply a context in which the EO phenomenon is explored.”</td>
<td>(Covin &amp; Miller, 2013, p. 14)</td>
</tr>
</tbody>
</table>

Source: the author’s own study.

**Table 3. The three-dimensional construct of IEO**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Composite Qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proactiveness</td>
<td>– aggressive positioning relative to competitors in pursuit of a firm’s international market objectives (Knight, 2001)</td>
</tr>
<tr>
<td></td>
<td>– capitalising on new and existing international business opportunities (Wiklund &amp; Shepherd, 2005)</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>– a firm’s tendency to enter experimentation, support new international ideas and depart from established practices (Lumpkin &amp; Dess, 1996; Miller, 1983; Wiklund &amp; Shepherd, 2005).</td>
</tr>
<tr>
<td></td>
<td>– the development or enhancement of products and services (Knight, 2001)</td>
</tr>
<tr>
<td>Risk taking</td>
<td>– willingness of the international entrepreneur to make investments and commit resources to projects that have uncertain outcomes or unusually high profits and/or losses (Lumpkin &amp; Dess, 1996; Wiklund &amp; Shepherd, 2005)</td>
</tr>
</tbody>
</table>

International entrepreneurial culture (IEC) can be considered as a parallel and complimentary concept to IEO. Dimitratos and Plakoyiannaki\textsuperscript{32} suggest that international entrepreneurial culture embodies six dimensions, namely (i) the market orientation towards international activities, (ii) the learning orientation focused on foreign markets and the alertness to opportunities that exist in these markets, (iii) the innovation propensity, (iv) the risk attitudes in pursuit of new opportunities in foreign markets, (v) the networking orientation, (vi) the motivation orientation in order to explore and exploit opportunities in foreign markets. Zahra\textsuperscript{33} claims it would be instructive to apply these six dimensions while explaining international new ventures or born globals.

3. Research Methodology

3.1. Sample Selection and Characteristics

To select the sample, we used a list of companies registered in Poland according to the REGON register, and 7100 companies were drawn to the survey, out of only 355 positively took part in the survey (5%). The stratified random sampling was applied according to the following criteria:

1) only internationalised businesses (at least exporting);
2) businesses of all sizes, however, with a small share of microenterprises as the least internationalised as well as large companies as being the smallest group in the population, both amounting to 10–15%, while small and medium-sized companies should be amounting to 25–45% of the final sample.

The reasons while the rest of the drawn companies were not engaged in the final sample are as follows:

– 28.1% (1991) not being an internationalised firm;
– 25.3% (1796) wrong phone number or nobody answers the phone;
– 22.9% (1627) refusal to take part in the survey;
– 18.7% (1331) difficulties in getting answers due to various reasons.

A total of 355 questionnaires were gathered using a CATI (computer-assisted telephone interviewing) technique (Table 4). The questionnaire was divided into four thematic parts, namely: (i) the characteristics of the firm, (ii) entry modes and


What Determines Entrepreneurial Orientation of Polish Internationalized Firms?

scope of internationalization, (iii) patterns and strategies of internationalization, (iv) resources and competences, (v) domestic and foreign business environment, (vi) entrepreneurial orientation, (vi) the characteristics of the entrepreneur.

Table 4. Characteristics of the research sample

<table>
<thead>
<tr>
<th>Size of the Firms (in %)</th>
<th>Sector of the Economy (in %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>micro</td>
<td>agriculture</td>
</tr>
<tr>
<td></td>
<td>14.1</td>
</tr>
<tr>
<td>small</td>
<td>manufacturing</td>
</tr>
<tr>
<td></td>
<td>43.1</td>
</tr>
<tr>
<td>medium-sized</td>
<td>construction</td>
</tr>
<tr>
<td></td>
<td>29.8</td>
</tr>
<tr>
<td>large</td>
<td>trade</td>
</tr>
<tr>
<td></td>
<td>13.0</td>
</tr>
<tr>
<td></td>
<td>service</td>
</tr>
<tr>
<td></td>
<td>17.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Foreign Ownership (in %)</th>
<th>Age of the Firms (in years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>Age of the Firms (in years)</td>
</tr>
<tr>
<td>28</td>
<td>24</td>
</tr>
<tr>
<td>Min</td>
<td>Min</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Q1</td>
<td>Q1</td>
</tr>
<tr>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Median</td>
<td>Median</td>
</tr>
<tr>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Q3</td>
<td>Q3</td>
</tr>
<tr>
<td>68.5</td>
<td>25</td>
</tr>
<tr>
<td>Max</td>
<td>Max</td>
</tr>
<tr>
<td>100</td>
<td>183</td>
</tr>
</tbody>
</table>

Source: the author’s own study based on the survey results of 2015 (n=355).

3.2. Measurement of Variables

In this study, the concept of ‘entrepreneurial orientation’ (IEO) defined by Miller (1983) and extended by Covin and Slevin\(^{34}\) as well as Covin and Miller\(^{35}\) was applied. Thus, the EIO uses three dimensions, namely innovation, proactiveness and risk-taking (see Appendix 1). Each of these three dimensions was constructed based on three basic variables, and the EIO indicator was designed by using nine variables altogether. Certainly the EIO indicator is autocorrelated with nine basic variables and three dimensions (Figure 2) measured by linear Pearson’s correlation (p = 0.00).

The internationalization was measured by four different measures, namely transnationality index (TNI), internationalisation scope (INT_SCOPE), internationalization speed (INT_SCOPE) and internationalization degree (INT_DEGREE).

TNI is one of the universal measures applicable for both small and medium-sized enterprises (SMEs) and large companies. It is calculated as a weighted average of the three shares, taking into account the relationship of foreign assets (\(A_F\)) to total


assets (\(A_T\)), foreign sales (\(S_F\)) to total sales (\(S_T\)) and foreign employment (\(E_F\)) to total employment (\(E_T\)), being expressed as a percentage (from 0 to 100%). Internationalization scope is measured as the number of countries where a firm operates. Internationalization speed is measured as the number of years that passed from the first internationalization, and as a dummy variable is divided into two ranges – up to three years and above using the solid concept of born globals from the literature. Internationalization degree was applied in the way as it was defined by Ripolles-Melia, Menguzzato-Boulard and Sanchez-Peinado\(^{36}\) and it “takes a value of 1 if the percentage of foreign sales oscillates between 25 and 50% of total sales, a value of 2 if foreign sales oscillates between 50 and 75%, and a value of 3 if it is higher than 75% of total sales”.

**Figure 2. Autocorrelation among nine variables of IEO**

![Diagram showing autocorrelation among nine variables of IEO]

\[ \rho = 0.00 \]

Source: the author’s own study based on the survey results of 2015 (\(n=355\)).

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This study also uses various control variables, among them: being a family firm (0/1), international experience (INT_EXP), international vulnerability (INT_VULNER), employment (measured by the average annual numbers of employees), foreign ownership (in percentage from 0 to 100%), sector (0/1), operating in high-tech industries (0/1), being a high-growth and hyper-growth company (both 0/1) measured by the sales growth exceeding 20 or 500%, respectively, introducing any innovations within the previous 3 years (0/1) as well as the innovation index. International experience is measured as the number of years elapsed since the first internationalization. The internationalization index (INNO_INDEX) was constructed according to the type of applied innovation multiplied by its range (inner for a firm, local, national-wide and global – having the multiple from 1 to 4, respectively) and finally being divided by the maximum number of points, which resulted in the final indicator ranging from 0 to 1 (or expressed as a percentage from 0 to 100%).

3.3. Statistical Tests

The statistical calculations were made by the use of the statistical software Statistica® PL v. 10. In the empirical study, the level of the statistical significance (alpha or α) for statistical hypotheses testing was considered as 0.05. Apart from the well-known basic descriptive statistics, in order to verify the assumed hypothesis, the following inferential statistical tests were applied: linear Pearson correlation, Pearson Chi-square, t-test, the regression analysis, as well as the ANOVA analysis.

3.4. Testing Research Hypotheses

The research hypotheses, based on the literature review and own intuition, to be tested in this research study were as follows:

**H1:** Firms applying more advanced entry modes, defined as investment modes, have more entrepreneurial orientation than firms applying exporting and contractual entry modes.

**H2:** Firms operating in industries being sensitive to internationalization have more entrepreneurial orientation than firms operating in local industries strictly based on their location.

**H3:** Firms operating in high-tech industries have more entrepreneurial orientation during their internationalization process than firms operating in low-tech industries.

**H4:** High-growth and hyper-growth firms have more entrepreneurial orientation than firms noting traditional pace of their growth during their internationalization process.
H5: Firms having applied any innovation for the previous three years have more entrepreneurial orientation during their internationalization process than firms not having applied any innovations.

H6: Firms having an international strategy have more entrepreneurial orientation during their internationalization process than firms not having a strategy of internationalization.

H7: Firms cooperating with other business partners within either formal or even informal networks have more entrepreneurial orientation during their internationalization process than firms not operating within any networks.

4. Results and Discussion

As discussed above, the IEO indicator was constructed by applying nine different variables, all of them based on the 7-point Likert scale, thus the IEO indicator can take continuous values from 1 to 7, however, the average noted value was 4.07 (Table 5). In order to reveal the correlation among different variables describing internationalisation results, the correlation matrix was applied (Table 6).

### Table 5. Descriptive statistics for the IEO variable

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Q1</th>
<th>Me</th>
<th>Q3</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.000000</td>
<td>3.444444</td>
<td>4.111111</td>
<td>4.777778</td>
<td>6.666667</td>
</tr>
<tr>
<td>Mean</td>
<td>4.069484</td>
<td>0.976875</td>
<td>0.954285</td>
<td>4.333333</td>
<td>24.00489</td>
</tr>
</tbody>
</table>

Source: the author's own study based on the survey results of 2015 (n=355).

### Table 6. Correlation matrix of IEO and main internationalization indicators

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>IEO</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT_SPEED</td>
<td>-0.0595</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT_SCOPE</td>
<td>0.1939***</td>
<td>0.2697***</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT_DEGREE</td>
<td>0.0253</td>
<td>-0.1273*</td>
<td>0.1446*</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>TNI</td>
<td>0.0394</td>
<td>-0.1567**</td>
<td>0.0819</td>
<td>0.6980***</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

*** p < 0.000, ** p < 0.005, * p < 0.05

Source: the author's own study based on the survey results of 2015 (n=355).
The *t* statistics were calculated to test the hypotheses of equal means for 13 different control variables and 7 of them, expressed in the given hypotheses were supported. Based on the calculations, we can reject the null hypotheses of equal means at a 0.05 level of significance. As a result, the Student’s *t* test supports the existence of significant differences in mean values of entrepreneurial orientation (IEO) for seven different two-dimensional groups of firms. The conducted analysis of the mean value for the entrepreneurial orientation in the given above groups reveals that:

1) IEO value is higher for firms which applied investment entry modes than those which applied exporting and/or contractual entry modes. Firms having foreign branches or subsidies abroad are more entrepreneurial.

2) IEO value is lower for firms operating in industries sensitive to internationalization than in those strongly based on the territorial localization. Firms based on the local business domain are more entrepreneurial.

3) IEO value is higher for firms operating in high-tech industries than in low-tech industries. It allows assuming that high-tech firms are more entrepreneurial.

4) IEO value is higher for high-growth firms. Such firms are more entrepreneurial than firms which note traditional growth dynamics.

5) IEO value is higher for hyper-growth firms. Hyper-growth firms are more entrepreneurial than other firms, also than high-growth companies (hyper-growth: 4.98 versus high-growth: 4.25 and normal growth: 3.91 using the 7-point Likert scale).

6) IEO value is higher for innovators than for firms which have not implemented innovations. Innovative firms are more entrepreneurial.

7) IEO value is higher for firms having any international strategy than those not thinking strategically. Strategically-oriented firms are more entrepreneurial.

8) IEO value is higher for firms operating in formal and/or informal networks than for those not operating with other entities. Firms cooperating in any networks are more entrepreneurial.

The results discussed above support all seven hypotheses assumed prior to the calculations (Table 7).

In order to find specific features of entrepreneurial firms, the multivariate regression model was applied (Table 8), however, the determination coefficient is rather low as it is much below 50%, so the interpretation of the results is difficult to follow. Being an innovative firm accelerates the probability that a firm is more entrepreneurial (positive coef.), as does the innovativeness scale of the applied innovations.
Table 7. Results of the t-test for the dependent variable IEO

<table>
<thead>
<tr>
<th>Grouping Variables</th>
<th>Mean 0</th>
<th>Mean 1</th>
<th>t-value</th>
<th>df</th>
<th>p</th>
<th>Std.Dev. 0</th>
<th>Std.Dev. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced modes (0=no, 1=yes)</td>
<td>3.996357</td>
<td>4.515556</td>
<td>3.539770</td>
<td>353</td>
<td>0.000454</td>
<td>0.972821</td>
<td>0.886834</td>
</tr>
<tr>
<td>INT_SPEED (0=early, 1=slow)</td>
<td>4.087719</td>
<td>4.038399</td>
<td>-0.456752</td>
<td>343</td>
<td>0.648138</td>
<td>0.968973</td>
<td>0.997058</td>
</tr>
<tr>
<td>INT_VULNER (0=no, 1=yes)</td>
<td>4.325137</td>
<td>3.935622</td>
<td>-3.62883</td>
<td>353</td>
<td>0.000327</td>
<td>0.973600</td>
<td>0.953606</td>
</tr>
<tr>
<td>Sector (1=manufacturing)</td>
<td>4.048746</td>
<td>4.093802</td>
<td>0.431127</td>
<td>352</td>
<td>0.666640</td>
<td>0.968973</td>
<td>0.997058</td>
</tr>
<tr>
<td>High-Tech Industry (0=no, 1=yes)</td>
<td>3.637227</td>
<td>4.281979</td>
<td>-6.14114</td>
<td>353</td>
<td>0.000000</td>
<td>1.044802</td>
<td>0.868050</td>
</tr>
<tr>
<td>Family firms (0=no, 1=yes)</td>
<td>4.060399</td>
<td>4.080556</td>
<td>-0.193176</td>
<td>353</td>
<td>0.846933</td>
<td>0.958752</td>
<td>1.001432</td>
</tr>
<tr>
<td>Hidden champions (0=no, 1=yes)</td>
<td>4.056806</td>
<td>4.159091</td>
<td>0.649546</td>
<td>353</td>
<td>0.516408</td>
<td>0.968474</td>
<td>1.041598</td>
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<tr>
<td>High-Growth (0=no, 1=yes)</td>
<td>3.914620</td>
<td>4.256595</td>
<td>3.132671</td>
<td>327</td>
<td>0.001889</td>
<td>1.018985</td>
<td>0.919058</td>
</tr>
<tr>
<td>Hyper-Growth (0=no, 1=yes)</td>
<td>4.025832</td>
<td>4.981481</td>
<td>-2.34784</td>
<td>318</td>
<td>0.019495</td>
<td>1.185127</td>
<td>0.984157</td>
</tr>
<tr>
<td>Innovators (0=no, 1=yes)</td>
<td>2.585185</td>
<td>4.134967</td>
<td>6.337008</td>
<td>353</td>
<td>0.000000</td>
<td>0.727958</td>
<td>0.934259</td>
</tr>
<tr>
<td>Strategy (0=no, 1=yes)</td>
<td>3.902998</td>
<td>4.259036</td>
<td>3.479662</td>
<td>353</td>
<td>0.000565</td>
<td>1.031133</td>
<td>0.876376</td>
</tr>
<tr>
<td>Cooperation (0=no, 1=yes)</td>
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<td>4.241135</td>
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<td>Border (0=no, 1=yes)</td>
<td>4.118104</td>
<td>4.036688</td>
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<td>353</td>
<td>0.441968</td>
<td>1.023138</td>
<td>0.945439</td>
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</table>

Source: the author’s own study based on the survey results of 2015 (n=355).

Table 8. Results of multivariate regression of the dependent variable “international entrepreneurial orientation” (IEO)

<table>
<thead>
<tr>
<th>n=276</th>
<th>b*</th>
<th>St. Err. b*</th>
<th>b</th>
<th>St. Err. b</th>
<th>t (261)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;absolute value&gt;</td>
<td>4.690041</td>
<td>0.873848</td>
<td>5.36712</td>
<td>0.000000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT_SPEED</td>
<td>-0.007434</td>
<td>0.056093</td>
<td>-0.000503</td>
<td>0.003795</td>
<td>-0.13253</td>
<td>0.894670</td>
</tr>
<tr>
<td>INT_SCOPE</td>
<td>0.085658</td>
<td>0.060844</td>
<td>0.008177</td>
<td>0.005808</td>
<td>1.40781</td>
<td>0.160376</td>
</tr>
<tr>
<td>INT_DEGREE</td>
<td>0.036620</td>
<td>0.082755</td>
<td>0.030146</td>
<td>0.067755</td>
<td>0.44493</td>
<td>0.656739</td>
</tr>
<tr>
<td>INT_EXP</td>
<td>-0.057398</td>
<td>0.055976</td>
<td>-0.004977</td>
<td>0.004854</td>
<td>-1.02539</td>
<td>0.306130</td>
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</tbody>
</table>
What Determines Entrepreneurial Orientation of Polish Internationalized Firms?

<table>
<thead>
<tr>
<th>R = 0.57981734</th>
<th>R^2 = 0.33618815</th>
<th>Corrected R^2 = 0.30058139</th>
</tr>
</thead>
<tbody>
<tr>
<td>F(14, 261) = 9.4417</td>
<td>p &lt; 0.0000000000</td>
<td>Est. Std. Err.: 0.82674</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>n=276</th>
<th>b*</th>
<th>St. Err. b*</th>
<th>b</th>
<th>St. Err. b</th>
<th>t (261)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>INT_VULNER</td>
<td>0.083730</td>
<td>0.055364</td>
<td>0.132036</td>
<td>0.087306</td>
<td>1.51234</td>
<td>0.131658</td>
</tr>
<tr>
<td>TNI</td>
<td>−0.042513</td>
<td>0.106325</td>
<td>−0.002105</td>
<td>0.005263</td>
<td>−0.39984</td>
<td>0.689602</td>
</tr>
<tr>
<td>Employment</td>
<td>−0.032839</td>
<td>0.057152</td>
<td>−0.000116</td>
<td>0.00202</td>
<td>−0.57458</td>
<td>0.566067</td>
</tr>
<tr>
<td>Foreign Ownership</td>
<td>0.069096</td>
<td>0.076962</td>
<td>0.001627</td>
<td>0.001813</td>
<td>0.89779</td>
<td>0.370124</td>
</tr>
<tr>
<td>Sector (0/1)</td>
<td>−0.120186</td>
<td>0.057837</td>
<td>−0.239985</td>
<td>0.115489</td>
<td>−2.07799</td>
<td>0.038688</td>
</tr>
<tr>
<td>High/Low-Tech</td>
<td>−0.266364</td>
<td>0.055096</td>
<td>−0.332353</td>
<td>0.068745</td>
<td>−4.83456</td>
<td>0.000002</td>
</tr>
<tr>
<td>High-Growth</td>
<td>−0.020210</td>
<td>0.053370</td>
<td>−0.040672</td>
<td>0.107403</td>
<td>−0.37868</td>
<td>0.705232</td>
</tr>
<tr>
<td>Hyper-Growth</td>
<td>−0.089429</td>
<td>0.051804</td>
<td>−0.661656</td>
<td>0.383284</td>
<td>−1.72628</td>
<td>0.085480</td>
</tr>
<tr>
<td>Innovators</td>
<td>0.208125</td>
<td>0.054141</td>
<td>0.969387</td>
<td>0.252176</td>
<td>3.84409</td>
<td>0.000152</td>
</tr>
<tr>
<td>INNO_INDEX</td>
<td>0.281183</td>
<td>0.062069</td>
<td>0.012584</td>
<td>0.002778</td>
<td>4.53015</td>
<td>0.000009</td>
</tr>
</tbody>
</table>

Source: the author’s own study based on the survey results of 2015 (n=355).

5. Conclusion

International entrepreneurship focuses on the entrepreneur as well as on innovation and entrepreneurial processes concerning recognition and exploitation of international opportunities in the context of institutional environment and entrepreneurship culture. Therefore, international entrepreneurial orientation “can be meaningfully extended into the field of IE as a way of examining and explaining the cross-border internationalisation of firms.” It seems that creating a solid and unique methodology for international entrepreneurship is essential to recognise international entrepreneurship as a separate research discipline, as it is true currently in the case of international business. Taking into account the interdisciplinary character of entrepreneurship, it is possible that international entrepreneurship will fully become ‘a hub and a spoke’ and a binder for all the internationalisation theories and

approaches constituting the base for the integrative models. While summarising the issue of international entrepreneurial orientation, Glavas and Mathews\textsuperscript{40} stress that:
- IEO is a multi-dimensional concept\textsuperscript{41};
- IEO can be considered both an individual and firm-level construct\textsuperscript{42};
- IEO enables business to identify and exploit internationalisation opportunities\textsuperscript{43};
- IEO reflects the firms overall proactiveness and aggressiveness in its pursuit of international markets\textsuperscript{44};
- IEO involves taking advantage of international market offerings and taking risks in international environments\textsuperscript{45}.

Al in all, it is apparent from the foregoing arguments that international entrepreneurship is becoming the major approach towards business internationalisation, exploring numerous aspects of international business from the entrepreneurship perspective. The fact of the matter is that many aspects of international business, even those well-grounded in the theory of entrepreneurship, are still unexplored in the international context (international entrepreneurship). Therefore, this study was designed to explore some links between entrepreneurial orientation and international business in Poland, which can be considered a kind of novelty. Six out of seven assumed hypotheses were confirmed, while one was rejected:

| H1: | Firms applying more advanced entry modes, defined as investment modes, have more entrepreneurial orientation than firms applying exporting and contractual entry modes. | confirmed |


Like all research, this study is not without some notable limitations. First of all, the research sample is not representative, thus, it is not possible to absolutise the result over the whole population of Polish businesses. Secondly, future studies should seek to develop longitudinal research designs. Thirdly, as for the owner characteristics, a particularly interesting study should examine entrepreneurial intentions and their antecedents at one point in time. In addition, it would be useful to investigate into international entrepreneurial orientation⁴⁶, not only entrepreneurial orientation.

---
Bibliography


## Appendix 1. The Miller / Covin and Slevin EO Scale (M/C&S Scale)

<table>
<thead>
<tr>
<th>Innovativeness items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EO1:</strong> In general, the top managers of my firm favour …...</td>
</tr>
<tr>
<td>…a strong emphasis on the marketing of tried-and-true products and services.</td>
</tr>
<tr>
<td>(Item originally proposed by Khandwalla (1976/1977))</td>
</tr>
<tr>
<td><strong>EO2:</strong> How many new lines of products or services have been marketed in the past 5 years (or since its establishment)?</td>
</tr>
<tr>
<td>No new lines of products or services.</td>
</tr>
<tr>
<td>Very many new lines of products or services.</td>
</tr>
<tr>
<td>(Item originally proposed by Miller and Friesen (1982))</td>
</tr>
<tr>
<td><strong>EO3:</strong> Changes in products or services lines ……</td>
</tr>
<tr>
<td>…have been mostly of a minor nature.</td>
</tr>
<tr>
<td>…have usually been quite dramatic.</td>
</tr>
<tr>
<td>(Item originally proposed by Miller and Friesen (1982))</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Proactiveness items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EO4:</strong> In dealing with its competitors, my firm ……</td>
</tr>
<tr>
<td>…typically responds to actions that competitors initiate.</td>
</tr>
<tr>
<td>(Item originally proposed by Covin and Slevin (1989))</td>
</tr>
<tr>
<td><strong>EO5:</strong> In dealing with its competitors, my firm ……</td>
</tr>
<tr>
<td>…is very seldom the first business to introduce new products/services, administrative techniques, operating technologies, etc.</td>
</tr>
<tr>
<td>…is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.</td>
</tr>
<tr>
<td>(Item originally proposed by Covin and Slevin (1989))</td>
</tr>
<tr>
<td><strong>EO6:</strong> In dealing with its competitors, my firm ……</td>
</tr>
<tr>
<td>…typically seeks to avoid competitive clashes, performing a “live-and-let-live” posture.</td>
</tr>
<tr>
<td>…typically adopts a very competitive, “undo-the-competitors” posture.</td>
</tr>
<tr>
<td>(Item originally proposed by Covin and Slevin (1989))</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk-taking items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EO7:</strong> In general, the top managers of my firm have ……</td>
</tr>
<tr>
<td>…a strong proclivity for low-risk projects (with normal and certain rates of return).</td>
</tr>
<tr>
<td>(Item originally proposed by Khandwalla (1976/1977))</td>
</tr>
<tr>
<td><strong>EO8:</strong> In general, the top managers of my firm believe that ……</td>
</tr>
<tr>
<td>…owing to the nature of the environment, it is best to explore it gradually via cautious, incremental behaviour.</td>
</tr>
<tr>
<td>…owing to the nature of the environment, bold wide-ranging acts are necessary to achieve the firm’s objective.</td>
</tr>
<tr>
<td>(Item originally proposed by Miller and Friesen (1982))</td>
</tr>
</tbody>
</table>
**E09:** When confronted with decision-making situations involving uncertainty, my firm …

<table>
<thead>
<tr>
<th>1 2 3 4 5 6 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>…typically adopts a cautious “wait-and-see” posture in order to minimalize the probability of making costly decisions.</td>
</tr>
<tr>
<td>…typically adopts a bold aggressive posture in order to maximize the probability of exploiting potential opportunities.</td>
</tr>
</tbody>
</table>

[Item originally proposed by Covin and Slevin (1989)]

Abstract

Investments made by private equity funds must abide by the highest ethical standards as the framework within which their stakeholders operate is very much based on broadly understood trust. The paper discusses selected professional standards especially important for private equity transactions. It is based on the Professional Standards Handbook, a set of principles focusing on integrity and acting with fairness, keeping one's promises, disclosing conflicts of interest, maintaining confidentiality, and promoting best practices for the benefit of sustainable investment and value creation. We also address the ESG issues which – besides financial aspects – exert substantial impact upon sustainable development of the private equity market. Ethical standards have gained in importance especially with the adoption of the AIFM Directive designed to regulate the operations of alternative investment funds.

Keywords: private equity, professional standards, AIFM Directive, sustainable investment, ESG

JEL Code: G340
1. Introduction

Private equity is a form of equity investment which consists in providing financial resources, knowledge and experience to start-ups as well as to established renowned companies.

Private equity investment allows enterprises which face difficulties in raising capital from other sources to achieve durable and sustainable growth.

In order to produce expected effects, the private equity investment process must, inter alia, abide by the highest ethical standards. Although the requirement concerns not only the industry in question and ethical standards should be observed in any investment process¹, due to the specificity of the environment in which private equity stakeholders operate, broadly understood trust is its crucial building block. That is why the private equity sector plays a key role in developing corporate governance standards in unlisted companies. The essence of corporate governance lies in acting in the joint interest of portfolio companies, General Partners, and Limited Partners, who are expected to operate in the environment that generates mechanisms and behaviours that ensure informed and efficient decision-making.

The goal of the paper is to identify selected professional standards that are especially important for investments made by private equity funds.

The paper is based on the Code of Conduct adopted for the first time in 2013 by Invest Europe². Since then, the code has been constantly improved and it fits and mirrors basic objectives of the AIFM Directive (AIFMD)³. It is known as the Professional Standards Handbook⁴ and contains a set of principles that should stand together as a whole. These principles are designed to ensure: acting with integrity, keeping one’s promises, disclosing conflicts of interest, acting in fairness, maintaining confidentiality, and promoting best practices for the benefit of sustainable investment and value creation. All private equity funds, and members of Invest Europe in particular, are obliged to comply with the principles explained in the Handbook.

The long-term nature of the partnership formed through negotiations and ongoing cooperation between General Partners and Limited Partners sets private equity

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² The association bringing together the biggest private equity/venture capital funds operating in Europe; it was established in 1983, earlier known as EVCA; the earliest version of the Handbook was drafted in 1983 and since then it has constantly evolved.
apart from other asset classes. Both parties expect from each other accountability, transparency, acting in accordance with expectations and timely delivery. General Partners, who are active and responsible owners of portfolio companies, operate in line with corporate governance principles striving to create lasting value. Relationships among the actors of the private equity market should also be based on mutual trust understood as social capital.

2. Principles of Ethical Conduct to Be Observed Prior to an Investment

Principles of ethical conduct should be binding already at the early-stage planning, before a fund is formed. Pursuant to the AIFMD, there are specific registration requirements for those who market units or shares in funds and manage fund management entities.

The primary goal of the AIFMD was to provide a regulatory framework for the operations of alternative investment funds (AIF) in order to minimise the risk they pose to investors and other market participants. Funds that are run like companies, i.e. alternative investment companies [AIC – PL: alternatywne spółki inwestycyjne (ASI)], previously unknown to the Polish market, are a specific category of AIF. It marks a specific revolution in the Polish private equity market since typically funds are established as standard commercial law companies.

Advance planning is vital for future smooth performance of a fund. Aspects to be considered include fundraising timing, taking account of ramifications imposed by contractual provisions as well as human and financial resources. Besides, it is necessary to plan the budget, adopt an investment strategy, identify goals and an investment

---

5 Literature provides many definitions of social capital. Their overview can be found, e.g., in Z. Staniek. *Ekonomia instytucjonalna*, Difin, Warszawa 2017, p. 42 and the following pages.


7 A. Kowalska, T. Koellner, *Miliardy za ASI*, "Puls Biznesu", 06.11.2017; pursuant to the Amending Act an alternative investment fund can be a specialist open or closed-end investment fund. Moreover, the Amending Act covers a new group of actors, i.e. alternative investment companies [PL: alternatywne spółki inwestycyjne – ASI] and entities which manage them, i.e. ASI General Partners. In accordance with the Act, an ASI may operate as a share-holding company (limited liability company, joint stock company, European company), a limited partnership or limited joint-stock partnership; the Polish Financial Supervision Authority, *Zarządzający alternatywnymi spółkami inwestycyjnymi*, knf.gov.pl
policy, and reflect on the fund structure. Other important issues cover the target group of fund investors and fund economics meaning management fees, provisions for future costs to be incurred, the profit share or the timetable of payments.

Fundraising is also influenced by the subject-specific regulatory framework of a particular country. Some legal systems restrict marketing solicitation to specific categories of investors, which is why General Partners should be familiar with any legal limitations in order to avoid negative consequences. They should also propose a structure of the fund that would include the allocation of ongoing costs of its maintenance resulting from the planned structure.

3. Ethical Fundraising

It is in the fundraising stage when the relationship between the General Partner and investors (Limited Partners) takes shape. This relationship is based on interpersonal relations usually maintained not exclusively by the General Partner but also by its external experts. Tasks to be delivered should be clearly divided between the General Partner’s in-house team and external experts. There should also be adequate financial resources available to cover the costs of the fundraising process. These costs can be substantial especially when fundraising engages many external actors, hence it is fundamental to allocate\(^8\) and communicate them to potential investors.

Practice has shown that the fundraising team approaches the existing investors first, which later translates into a positive image of the fund in the eyes of “new” investors and increases its credibility. The General Partner should bring together a group of potential investors capable to ensure a sustainable source of financing for the fund and help minimise the negative impact of a single investor’s non-compliance with their obligations. To prevent money laundering or other illicit practices, it should also refuse any potential investment offer where the source of investment causes concern.

By default, all Limited Partners receive the same fair treatment, however, different terms may be offered to individual investors or groups thereof. In such cases a detailed justification needs to be provided as Limited Partners (the privileged ones) may also have an issue if some investors have influence over the fund’s investment decisions. All the granted preferences should be disclosed to all investors already at

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\(^8\) These are the so-called transaction costs, which are the costs of coordination resulting from the cooperation of many economic operators in the market, see: M. Garbicz, Z. Staniek, Mikroekonomia. Problemy zawodności rynku, Wydawnictwo Wyższej Szkoły Menedżerskiej w Warszawie, Warszawa 2010, p. 28 and the following pages.
the outset of fund organisation. The requirement is laid down in the provisions of the AIFM Directive. Privileged treatment of some Limited Partners means the General Partner must take care of the alignment of interests of all Limited Partners and take care of potential conflicts of interests, which is not an easy task, especially when the Most Favoured Nation clauses granted to some Limited Partners may lead to other investors’ claims to be offered similar beneficial terms.

The fundraising team should draft two basic sets of documents: a private placement memorandum as the core part of the offering and the constitutional documents of the fund. The private placement memorandum should be finalised before the first closing and, if necessary, updated before each subsequent closing. As these documents may be amended over the course of negotiations until the final closing, there is a risk that not all Limited Partners will receive the same information about the fund. In such cases it is critical to ensure that all investors receive a complete and final version of documents prior to the closing.

The fundraising team may also set up a data room, where investors will find documents about the fund, its investment strategy and the General Partner’s prior track records. These materials are often confidential because they contain sensitive data concerning the General Partner and its portfolio companies, which is why they need to be handled appropriately and kept secure and confidential.

Any efforts exercised by the fundraising team should be compliant with the requirements of the laws in all jurisdictions where the fund is marketed. That is why legal advice should be sought with regard to regulatory requirements binding in a given country as it helps reduce transaction costs.

Fund documents made available as part of due diligence, which explain the key operating environment and management of the fund, need to address a series of aspects connected, inter alia, with the investment strategy, structure, allocation of responsibilities, funding terms, the period for which the fund has been established, risk factors or tax considerations.

From due diligence investors expect detailed information about the General Partner’s track history. All disclosed information should be credible and fully based on the fund’s documentation. Calculations and valuation must follow valuation principles and accounting standards required in any given jurisdiction.

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10 In-depth checks carried out by the General Partner prior to the closing.
4. Socially Responsible Investment

Responsible investment in accordance with the ESG\(^\text{11}\) principles (environmental protection, social aspects and corporate governance) is gaining in importance in the private equity industry. As the sustainable growth agenda has become a social issue, General Partners and Limited Partners alike strive to ensure the ESG compliant investment throughout the entire investment process\(^\text{12}\). It is vital to outline the responsible investment policy of the General Partner not only during due diligence but also throughout the life of the fund. Investors should be able to find out whether the General Partner’s ESG-related policy is aligned with their own policy, if the General Partner supports its portfolio companies in ESG-related risk management and in seeking possible new development opportunities, and whether it will help monitor acting consistently with the ESG policy adopted when the fund was established.

As we have already mentioned, responsible investment is a crucial element of private equity investment not only at the fundraising stage but also later during the closing and when continuous monitoring of the investment. At each of these stages, the General Partner must be aware of ESG-related risks and opportunities seeking to integrate responsible investment principles into due diligence and all of the investment decision-making\(^\text{13}\). Having identified potential opportunities and threats prior to the closing, the General Partner should immediately develop rules that would minimise such threats and help exploit the opportunities. Acting with this respect should be monitored continuously through ESG-related information received from portfolio companies, which needs to be updated in line with the evolution of market trends.

ESG factors remain vital at each stage of an investment but before contributing capital to any portfolio company special attention should be paid to due diligence, which examines a wide scope of the company’s business performance including commercial, market, financial, tax, legal, regulatory, technological, intellectual property, management quality, and, obviously ESG-related aspects. Due diligence identifies potential risks involved in a particular investment and examines other aspects that may impact the investment decision, company valuation or attainable rate of


\(^\text{13}\) *Integrating ESG in private equity, a Guide for General Partners, Principles for Responsible Investment; ESG Considerations for Private Equity Firms*, PricewaterhouseCoopers 2015.
return. Appraisal covers opportunities and risks involved in them contrasted with potential benefits of a planned investment. Besides the results of due diligence, an investment decision is also influenced by recommendations of the General Partner’s top management, which form part of an investment application. When the application is examined, checks are carried out to find out if the transaction complies with investment criteria and does not infringe provisions set out in the fund’s documents.

Prior to the investment an exit strategy should be decided. Divestment is not always feasible because expected results have not been achieved or potential buyers cannot be found. Already at an early stage of investment planning, the exit process should be discussed with all the co-investors and the management of a given portfolio company. When making an investment, the General Partner should already have the negotiated mechanisms in place to ensure the protection of the fund’s interests in case of any deadlock regarding divestment.

5. Investment Agreement

Issues to be regulated by the Investment Agreement depend on local legal requirements, tax considerations and the structure of a transaction in question. Investments made by the fund can take a variety of forms: the fund may act as a passive minority shareholder or it may take full control over a portfolio company. It depends on the jurisdiction, in which a particular investment is to take place, investment strategy, and the holdings in the company. Possibly, shares in a portfolio company can be owned by investors other than the fund, who may enjoy various rights dependent on the role these investors play in the transaction in question, the risk involved and the size of their contribution. Negotiations concerning the rights of different shareholders should be clearly understandable to all investors and potential conflicts should be identified well in advance. Conflict resolution should take place in a fair manner to avoid a negative impact upon the portfolio company.

The Investment Agreement needs to precisely identify the scope of influence of the General Partner upon day-to-day business operations. If the fund is a majority shareholder, it will exercise decision-making rights reserved to shareholders but it may also acquire additional rights specified in the Investment Agreement or in the portfolio company’s constitutional documents. They mainly address the requirement of investor consent to certain actions of the company and the right to make appointments to the company’s statutory bodies. The obligation to seek investor consent covers a long list of issues, however, it should not be abused to avoid limiting the management ability to manage the company or to excessively engage the General Partner.
6. Management of an Investment

Appropriate management is essential to maximise the fund’s returns. Private equity specificity consists in active management and long-term value creation combined with investment monitoring based on adopted criteria. Usually funds require quantitative and qualitative information, whose scope is more detailed than the one stipulated in general regulations. The scope of information depends on how the General Partner wishes to impact a company’s strategy and value creation and on his/her holdings in the company. Information about the company includes, besides financial indicators, ESG-related non-financial information. When analysing environmental information, we need to assess the environmental impact of portfolio companies, their products and supply chains and, conversely, the impact of environmental factors upon portfolio companies and their suppliers.

The evaluation of social factors covers issues relating to workers, clients, suppliers and local communities. Appropriate management of social factors may produce real value through, e.g., a progressive employment policy leading, in the long-run, to higher productivity, winning the support of local communities or ensuring the continuity of supplies as a result of active co-operation with suppliers. Neglecting social factors may potentially damage the company’s brand or reputation, which impacts the company’s value.

Corporate governance, if effective and properly implemented, supports decision-making and ensures the alignment of interests of all stakeholders in the company, i.e., the management, employees, the General Partner, and investors in the fund. It is the key area, which reveals much about the effective running of the business and contributes to steadily building up its value. The General Partner should be up to date with binding legal rules and best practices in all the jurisdictions in which portfolio companies are based. He/she should also review and assess the adequacy of applied practices and standards.

The General Partner should be able to demonstrate to the stakeholders that its ESG-related practices are appropriate, effective and in line with General Partner’s business profile\(^\text{14}\). The company’s board members should be actively involved in opportunities and risks’ identification and management across all business areas, including financial and non-financial factors.

7. Disposal of an Investment and Distributions to Investors

It is up to the General Partner to decide which moment is appropriate to dispose of an investment by comparing the present value of the investment, its potential future value and the opportunities to receive an adequate price within a planned period. The result of the disposal of an investment decides on the return to investors and provides grounds for the assessment of the General Partner’s performance. The assessment is made by the current and potential investors and observers from the industry. A change in the ownership of a company involves changes to various stakeholders while the disposal of an investment as well as its timing may be influenced by many ESG factors essential to the portfolio company and to the potential buyer of its shares. Divestment leads to financial transactions, in which financial resources are transferred between the parties, hence we need to follow anti-money laundering regulations.

Sometimes, on disposal, the new purchaser expects to receive contractual warranties and indemnification from the fund formulated in indemnification clauses. Indemnification clauses are negotiable as they may be detrimental to the benefits of the fund. On the other hand, if the agreement includes such clauses, they may produce an enhanced return on investment. During negotiations the parties may agree the time limit and financial caps for future claims arising under indemnification clauses.

The adequate specification of how distributions are made to investors following the disposal of an investment by the General Partner will help avoid disputes over the allocation of profits and losses. The calculation of the General Partner’s share in profits and identification of the order in which payments will be made to Limited Partners and to the General Partners would also be helpful. On top of that, it must be decided when distributions of profits shall be made to the General Partner and when investors may demand their contributions made to the General Partner.

Upon the disposal of an investment, when all distributions have been made to investors and on final closing of the fund, the General Partner should take care of maintaining good relations with them. Adequate procedures followed in maintaining contacts with investors, reporting and seeking transparency of relationships with them are vital foundations of their strong partnership.

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15 These clauses limit the risk in financial transactions and clearly divide responsibility for specific events between the parties to the contract. They may protect against third party claims or address relations between the parties. Usually, they form part of contracts on the transfer of rights or cooperation.
Conclusion

The implementation of the AIFM Directive fits the framework created by professional investment standards that were put in place already some time ago and are observed by the private equity industry. We need to stress that private equity funds in the European market play a key role in promoting ethical standards. Funds’ representatives, portfolio companies, service providers or the remaining stakeholders are obliged to promote and abide by the highest standards in investing in non-listed assets. Importantly, market participants are aware not only of financial aspects relating to their respective investments but also of the impact of environmental, social and corporate governance factors on the private equity market growth.

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Abstract

Several theories have been documented on the relevance and irrelevance of dividend policy. Many researchers continue to come up with different findings on the relevance of dividend policy to the value of firms. In this paper, after an analysis of the different dividend pay-outs offered by Italian and Polish firms, we aim to understand the main factors that determine the dividend policies of listed companies in Italy and Poland. In order to analyse this policy, we extract data from a wide sample of firms selected from the equity markets of the Italian and Polish stock exchanges. We use descriptive statistics and statistical regressions. The analysis is developed using the Statistical Package for Social Sciences (SPSS).

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The study reaches findings that are of great relevance to scholars and investors investigating dividend issues. The paper finds that there are many differences between Italian and Polish dividend policies; in particular, the dividend pay-out is mostly determined by the dividend yield and liquidity in Polish firms, while it is heavily influenced by profitability and leverage in Italian firms.

Keywords: dividend policy theory, dividend pay-out, stock market, international comparison

JEL Codes: G35, G31

1. Introduction

This paper presents the findings of a comparative study of dividend policies in Italy and Poland. It examines panel data from the constituent stocks of Financial Times Stock Exchange (FTSE) All-Share of the Italian stock market and Warsaw Exchange Index (WIG) of the Polish stock market. FTSE All-Share includes approximately 85% of listed companies on the Borsa Italiana, while WIG includes approximately 80% of the companies listed on the Warsaw Stock Exchange (WSE). This is why the findings obtained using data from FTSE All-Share and WIG present the results that can represent the entire stock exchange markets in Italy and Poland.

In the case of Poland, about 40% of the companies (147 companies) paid dividends to shareholders. The number of dividend-paying companies grew from 34 in 2002 to 147 in 2013. The ratio of dividend-paying companies to all the companies reached 50% in the years between 2004 and 2006, and then it dropped to nearly 20% in 2008. Since 2008, this ratio has been constantly growing. Such fluctuations in dividend-paying companies’ ratio is coherent with the business cycle, when in the course of one year (2008), domestic companies on the WSE lost nearly half of their value due to panic withdrawal of foreign investors. The annual WIG in 2008 sank to –51%.

In the case of Italy, around 31% of the companies (105 companies) paid dividends to shareholders in 2014. The number of dividend-paying companies increased between 2001 (89 companies) and 2008 (138 companies); then, because of the financial crisis,
which in Italy has transformed into a crisis of the actual economy, the number of dividend-paying companies has decreased to the current number of 1055.

The evidence shows that Italian and Polish markets do not support the thesis about disappearing dividends. Dividend payers at both the WSE and Borsa Italiana follow their respective economic patterns. In deep crisis years, they limit dividend pay-outs and in times of prosperity, they are more generous with dividends. Dividend pay-out depends mainly on the market valuation of the company (dividend yield) and on the ability to create cash flow.

2. Literature Review

Dividend policy (DP) and its impact on the financial situations of companies are widely researched fields in finance. Many researchers study what exactly dividend policy is, its impact on share price, financial statements, and factors that actually influence it. Some theories regarding dividend policy are complementary, while some of them contradict each other. Miller and Modigliani’s irrelevance proposition proves that in a perfect market, dividend policy does not change shareholders’ wealth. However, later researchers started changing the primary “perfect” assumption of the model. Such “relaxed” adjusted models led to various theories, each of which implies that dividends are relevant. The sticky dividends in Lintner’s model mean that management is reluctant to increase dividends unless they are sure that they can support this increase indefinitely in the future. In his 1956 study, Lintner points out that the “level of current earnings was almost invariably the starting point in management’s consideration of whether dividends should be changed, and there were many cases where management, lacking a signal from earnings, had simply not sought out or brought other pertinent data (which might have favoured a dividend change) to bear on the problem”.

The agency problem hypothesis addresses dividends as a tool to mitigate conflicts between managers and investors. Dividend plays a role in monitoring the investment

5 Bloomberg Data Panel used for this research.
projects in the company. According to Jensen\textsuperscript{10}, obligations to make dividend pay-outs keep managers from further investing in negative net present value (NPV) projects, which consume firms’ free cash flows. In the theories on the information content of dividends and signalling\textsuperscript{11}, markets are imperfect because there is information asymmetry. In this approach, dividends help managers to convey signals to the market regarding profitability. In academia, the dividend puzzle\textsuperscript{12} refers to the situation in which dividend announcements and payments are considered good news and hailed as such by investors and analysts. Dividend cuts are considered bad news, suggesting a financial doom. The main reason why economists are puzzled is that equity holders pay a higher tax rate on dividend pay-outs compared to capital gains from the firm repurchasing shares as an alternative pay-out policy. DeAngelo, DeAngelo, and Skinner’s\textsuperscript{13} study supports Miller and Modigliani’s\textsuperscript{14} hypothesis that dividend reductions convey information that future earnings prospects are poor. According to their study, the knowledge that a firm has reduced dividends significantly improves the ability of current earnings to predict future earnings. However, later research shows (contrary to Lintner’s model) that dividends do not signal anything about the future profitability and the financial situation of the company (Bernatzi, Michaely, and Thaler\textsuperscript{15}). Dividends give information content but only about past operations\textsuperscript{16}. The disappearing dividend phenomenon\textsuperscript{17,18} addresses situations in which number of dividend-paying companies dramatically decreased in the 20\textsuperscript{th} century. This phenomenon was mostly observed in the US stock market. Kinnki’s\textsuperscript{19} study is a European paper that broadly reviews theories regarding dividend policy. In contrast to the “minimal predictive value of changes in dividends” from the Benartizi, Michaely, Thaler (BMT) paper\textsuperscript{20}, there


\textsuperscript{14} H.H. Miller, F. Modigliani, \textit{Dividend Policy…} op.cit.


are studies regarding the American market, in which positive changes in dividend policy signal a future positive change in earnings. Such a relationship does not exist in the case of negative changes\textsuperscript{21}. However, there are not many studies about Europe, especially those that conduct comparative analyses.

English language research on the Polish market mainly refers to dividend yield strategies\textsuperscript{22}, macroeconomic factors influencing dividend policy, quality of dividends defined as persistence in earnings\textsuperscript{23}, and corporate governance influencing dividend pay-outs\textsuperscript{24}. In relation to the present paper, Kowerski\textsuperscript{25} states that on the WSE, companies paying dividends have a higher persistence of earnings than non-dividend payers.

In Italy shareholders are better equipped to monitor and discipline managers, and the controlling shareholders are considered insiders. Therefore, the dividend distribution decision tends to be analysed in the perspective of agency costs\textsuperscript{26}. The main agency conflict to address in this context seems to be the one between large, controlling shareholders and minority shareholders\textsuperscript{27}. These authors report on empirical investigations into the relationship between dividend policy and the ownership structure of firms using a sample of 139 listed Italian companies. The ownership structure in Italy is highly concentrated; hence, the relevant agency problem to analyse seems to be the one that arises from the conflicting interests of large shareholders and minority shareholders. Mancinelli and Ozkan’s paper relates firms’ dividend pay-out ratios to various ownership variables, which measure the degree of concentration in terms of the voting rights of large shareholders. The results of the empirical analysis reveal that firms make lower dividend pay-outs as the voting rights of the largest shareholder increase. The results also suggest that the presence of agreements among large shareholders might explain the limited monitoring power of other “strong,” non-controlling shareholders. When large owners gain nearly full

\textsuperscript{25} M. Kowerski, *Dividends and Earnings*… op.cit.
control of a corporation, they prefer to generate private benefits at the expense of minority shareholders. This, in turn, suggests that firms with large shareholders should be more likely to accumulate more cash than widely held firms by paying out lower dividends.

The choice of the determinant of dividend policy for the current paper is based on the literature review. A broad and pioneering study on determinants of DP was presented by Rozeff\textsuperscript{28}, where it is stated that the sum of agency and transaction costs determine the optimal dividend pay-out. Dividend pay-out is a significant negative function of a firm’s past and expected future growth rate of sales, the beta coefficient, and the percentage of stock held by insiders while at the same time dividend pay-out is a positive function of a firm’s number of common stockholders.

There are several possible approaches to statistical modelling of the determinants of dividend pay-out. We follow Patra, Poshakwale, and Ow-Yong’s (2012) approach to statistical modelling and the choice of major variables presented in the papers *Determinants of Corporate Dividend Policy in Greece* in “Applied Financial Economics”\textsuperscript{29} and *Dividend Payout-Policy Drivers: Evidence from Emerging Countries*, in “Emerging Markets Finance & Trade”\textsuperscript{30}. We analyse the factors that influence dividend pay-out, taking into account samples from two markets—the Italian and Polish one. Included within the idea of investigating two independent markets, we examine papers that also place an emphasis on comparative analysis\textsuperscript{31}. Our paper contributes to the research on dividend pay-outs and their connection with a firm’s profitability.

### 3. A Brief Overview of Italian and Polish Capital Markets

We decided to compare Polish and Italian markets in our research for several reasons. The Italian stock exchange is a developed, liquid, and global market that became part of the London Stock Exchange in 2007. The WSE started its operation in 1991 with only 5 companies. Currently, 472 companies are listed, 51 of which are foreign. The capitalisation of the stock market is divided almost equally between domestic and foreign companies, which implies that domestic companies are much


smaller and younger. However, the WSE is still a leader in Central Europe. In terms of capitalisation, it is twice as high as the Central Eastern European Stock Exchange Group (CEEESEG), which comprises the stock exchanges from Budapest, Ljubljana, Prague, and Vienna. Taking this into account, it can be said that the WSE is on the path between emerging and developed markets. We want to bring out the differences and similarities that result from the different stages of development of these two markets.

One of the measures that indicate the level of development of the public capital market is the capitalisation per capita and per GDP. In the case of Poland, 51 foreign companies reach almost the same capitalisation as 421 domestic ones. However, it shows that the WSE is perceived as a safe and transparent market for foreign companies. Some of them have dual listings with the CEESEG in order to cover a greater geographical area and have relations with a wider group of investors. The capitalisation per capita of domestic companies is half that of the Italian market. In the case of Italy, 88% of listed companies on the Borsa Italiana are domestic. The sample of Polish companies is large enough to allow it to become a base for statistical analysis. Nevertheless, the WSE is a smaller and younger market than the Borsa Italiana, even though the former reaches a higher free-float index (47.5%). Free-float is an actual measure of liquidity of securities on the market. The recent public offering of the largest Polish bank (PKO) positively influenced the free-float on the WSE. However, in our sample, we exclude financial institutions that have, on average, higher free-float than industrial companies.

**Table 1. Main characteristics of the stock exchange markets in Italy and Poland**

<table>
<thead>
<tr>
<th>Ownership structure</th>
<th>Italy*</th>
<th>Poland**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total market capitalisation (domestic and foreign)</td>
<td>EUR 470.4 bn</td>
<td>EUR 281.7 bn</td>
</tr>
<tr>
<td>Capitalisation of domestic companies</td>
<td>EUR 467.8 bn</td>
<td>EUR 138.5 bn</td>
</tr>
<tr>
<td>Capitalisation of foreign companies</td>
<td>EUR 2.6 bn</td>
<td>EUR 139.2 bn</td>
</tr>
<tr>
<td>Total capitalisation per capita</td>
<td>EUR 8.071</td>
<td>EUR 7.293</td>
</tr>
<tr>
<td>Capitalisation of domestic-listed companies per capita</td>
<td>EUR 8.026</td>
<td>EUR 3.590</td>
</tr>
<tr>
<td>Total market capitalisation/ GDP</td>
<td>29.1%</td>
<td>72%</td>
</tr>
<tr>
<td>Domestic companies’ capitalisation/GDP</td>
<td>28.9%</td>
<td>35%</td>
</tr>
<tr>
<td>Total number of listed companies</td>
<td>342</td>
<td>472</td>
</tr>
<tr>
<td>Number of domestic listed companies</td>
<td>301</td>
<td>421</td>
</tr>
<tr>
<td>Free-float</td>
<td>30%</td>
<td>47.5%</td>
</tr>
</tbody>
</table>

* Borsa Italiana data for the end of 2014.
** WSE data for the end of 2014, Polish Statistical Office.
Source: Bloomberg Panel Data prepared for this research.
In the case of Italy, the Borsa Italiana is a 200-year-old stock exchange belonging to one of the biggest stock exchanges in the world, the London Stock Exchange Group. It is characterized by a low number of listed companies; in particular, only 41 foreign companies were listed on the regulated markets of the Borsa Italiana at the end of 2014, with the capitalization of EUR 2.6 billion.

3. Data and Methodology

The financial data in this section is primarily drawn from the Bloomberg Database. We created a sample composed of 703 firms, 328 of which are Italian firms listed on the Borsa Italiana Stock Exchange at the end of 2014 and 375 Polish firms listed on the WSE included in WIG Index at the end of 2014. From this database we eliminate:

- firms that have their quotations suspended;
- firms located outside the country of the stock exchange that have different accounting policies and accounting standards;
- firms active in the sector of financial intermediation (banks, insurance companies, and related activities), real estate, and rental activities.

We obtained a sample of 494 firms that includes 217 Italian firms and 277 Polish firms. The data are from the period between 2001 and 2014 (panel data). The descriptive statistics are in Table 2, which includes average and median values, standard deviation, and differences between Italian and Polish values.

The following OLS regression model was run first for the Italian firms and then for the Polish firms. The dependent variable is the dividend pay-out ratio. The pay-out ratio provides an idea of how well earnings support the dividend payments. More mature companies tend to have a higher pay-out ratio. Usually, a stable dividend pay-out ratio indicates a solid dividend policy. Conversely, investors value a reduction in the dividends poorly, and the stock price usually depreciates as investors seek other dividend-paying stocks:

\[
DPR_{i,t} = b_0 + b_1DY_{i,t} + b_2SIZE_{i,t} + b_3ROE_{i,t} + b_4DROE_{i,t-1} + b_5LEV_{i,t} + b_6VALUE_{i,t} + b_7LIQ_{i,t}
\]

where:
- \(DPR_{i,t}\) = dividend pay-out ratio for firm \(i\) in year \(t\) for the period between 2001 and 2014; DPR is defined as the percentage of earnings paid to shareholders in dividends (dividends/net income).
• $DY_{i,t}$ = dividend yield for firm $i$ in year $t$ for the period between 2001 and 2014; DY is a way to measure how much cash flow is obtained for each dollar invested in an equity position. It is calculated as annual dividend-per-share to price-per-share (VALUE). The high dividend yield is the maximum value of the ratio in the period considered.

• $SIZE_{i,t}$ = natural logarithm of total assets for firm $i$ in year $t$ for the period between 2001 and 2014.

• $ROE_{i,t}$ = return on equity for firm $i$ in year $t$ for the period between 2001 and 2014; ROE is a profitability ratio that measures the ability of a firm to generate profits from its shareholders’ investments in the company. It is calculated as net income to shareholders’ equity.

• $DROE_{i,t-(t–1)}$ = variation of return on equity for firm $i$ from year $t$ to year $t–1$ in the period between 2001 and 2014; DROE is calculated as the variation of ROE from year $t$ to year $t–1$.

• $LEV_{i,t}$ = debt/equity ratio for firm $i$ in year $t$ for the period between 2001 and 2014.

• $VALUE_{i,t}$ = last price of the last working day of the year for firm $i$ in year $t$ for the period between 2001 and 2014; VALUE is understood as the share price at the last closure.

• $LIQ_{i,t}$ = cash and other marketable securities for firm $i$ in year $t$ for the period between 2001 and 2014; LIQ is understood as cash plus short term securities that can be transformed rapidly into cash at a fair price.

We have studied the following regressors as they should influence the dividend pay-out ratio for several reasons: yield is a measure of shareholders’ return per unit; size measures the size of the firms; ROE measures the profitability of the firms; DROE measures the persistency of the profitability of the firms; leverage measures the leverage of the firms; value measures the market value of the firms; liquidity measures the liquidity of the firms.

The model was computed using a robust standard error (HAC) because of the presence of a few extremely high values for observations in the DPR and DY variables. As we can see from Table 2, the Italian firms present higher values for DPR, yield (only median values), size, leverage, and value and liquidity while the Polish firms present higher values for yield (only average values), ROE, and DROE. The difference between the Italian and Polish firms is statistically significant for each variable analysed. Consequently, the Polish firms have lower debts than the Italian firms, they are more profitable, and their profitability shows a positive trend. The

\[32\] ROE and ROA in the investigated samples were highly correlated; therefore, the authors decided to use one profitability factor in further statistical modelling.
Italian firms have a higher price for their shares, higher liquidity, higher debts, and on average, they tend to pay high dividends to their shareholders in order to prevent the shareholders’ escape.

**Table 2. Descriptive statistics**

<table>
<thead>
<tr>
<th></th>
<th>Italian firms</th>
<th>Polish firms</th>
<th>Difference</th>
<th>T-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPR</td>
<td>Average</td>
<td>214.35</td>
<td>43.32</td>
<td>171.02</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>35.02</td>
<td>19.88</td>
<td>15.15</td>
</tr>
<tr>
<td></td>
<td>Std. Dev</td>
<td>2,852.40</td>
<td>189.66</td>
<td>2,662.74</td>
</tr>
<tr>
<td>DY</td>
<td>Average</td>
<td>2.90</td>
<td>3.73</td>
<td>–0.83</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>2.05</td>
<td>1.78</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>Std. Dev</td>
<td>3.92</td>
<td>11.35</td>
<td>–7.43</td>
</tr>
<tr>
<td>SIZE</td>
<td>Average</td>
<td>5.88</td>
<td>3.97</td>
<td>1.91</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>5.75</td>
<td>3.86</td>
<td>1.90</td>
</tr>
<tr>
<td></td>
<td>Std. Dev</td>
<td>2.01</td>
<td>1.73</td>
<td>0.28</td>
</tr>
<tr>
<td>ROE</td>
<td>Average</td>
<td>1.65</td>
<td>8.09</td>
<td>–6.44</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>6.39</td>
<td>8.84</td>
<td>–2.45</td>
</tr>
<tr>
<td></td>
<td>Std. Dev</td>
<td>36.34</td>
<td>29.99</td>
<td>6.35</td>
</tr>
<tr>
<td>DROE</td>
<td>Average</td>
<td>–1.23</td>
<td>0.54</td>
<td>–1.77</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>–0.44</td>
<td>0.06</td>
<td>–0.50</td>
</tr>
<tr>
<td></td>
<td>Std. Dev</td>
<td>35.20</td>
<td>32.82</td>
<td>2.38</td>
</tr>
<tr>
<td>LEV</td>
<td>Average</td>
<td>169.77</td>
<td>60.64</td>
<td>109.13</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>76.58</td>
<td>31.20</td>
<td>45.38</td>
</tr>
<tr>
<td></td>
<td>Std. Dev</td>
<td>942.18</td>
<td>119.64</td>
<td>640.56</td>
</tr>
<tr>
<td>VALUE</td>
<td>Average</td>
<td>477.98</td>
<td>9.80</td>
<td>468.17</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>3.30</td>
<td>2.30</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Std. Dev</td>
<td>10,914.56</td>
<td>66.11</td>
<td>10,848.45</td>
</tr>
<tr>
<td>LIQ</td>
<td>Average</td>
<td>217.80</td>
<td>27.34</td>
<td>190.46</td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>21.70</td>
<td>2.77</td>
<td>18.93</td>
</tr>
<tr>
<td></td>
<td>Std. Dev</td>
<td>805.44</td>
<td>119.64</td>
<td>685.80</td>
</tr>
</tbody>
</table>

* p-value <10%, ** p-value <5%, *** p-value <1%.
Source: the authors’ own elaboration based on Bloomberg data.
4. Empirical Results

We have run two regressions using the same model described above. The results are very different for the two samples, as shown in Table 3.

Table 3. OLS regression models

<table>
<thead>
<tr>
<th></th>
<th>Italian firms</th>
<th>Polish firms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DY</strong></td>
<td>0.5859</td>
<td>0.7120</td>
</tr>
<tr>
<td>(p-value &lt;10%)</td>
<td>(&lt;0.00001***</td>
<td>(&lt;0.00001***</td>
</tr>
<tr>
<td><strong>SIZE</strong></td>
<td>0.3419</td>
<td>0.0833</td>
</tr>
<tr>
<td>(p-value &lt;10%)</td>
<td>(&lt;0.00001***</td>
<td>(0.0001***</td>
</tr>
<tr>
<td><strong>ROE</strong></td>
<td>-0.0569</td>
<td>0.0121</td>
</tr>
<tr>
<td>(p-value &lt;5%)</td>
<td>(0.0093***</td>
<td>(0.5110)</td>
</tr>
<tr>
<td><strong>DROE</strong></td>
<td>-0.0505</td>
<td>-0.0182</td>
</tr>
<tr>
<td>(p-value &lt;5%)</td>
<td>(0.0253**</td>
<td>(0.27165)</td>
</tr>
<tr>
<td><strong>LEV</strong></td>
<td>-0.0696</td>
<td>-0.0006</td>
</tr>
<tr>
<td>(p-value &lt;10%)</td>
<td>(0.0307**)</td>
<td>(0.9760)</td>
</tr>
<tr>
<td><strong>VALUE</strong></td>
<td>0.0868</td>
<td>0.0280</td>
</tr>
<tr>
<td>(p-value &lt;5%)</td>
<td>(0.0399**</td>
<td>(0.2884)</td>
</tr>
<tr>
<td><strong>LIQ</strong></td>
<td>0.0228</td>
<td>0.0428</td>
</tr>
<tr>
<td>(p-value &lt;10%)</td>
<td>(0.4493)</td>
<td>(0.0809*)</td>
</tr>
<tr>
<td><strong>Intercept</strong></td>
<td>-32.3196</td>
<td>-43.5389</td>
</tr>
<tr>
<td>(p-value &lt;10%)</td>
<td>(0.0042***</td>
<td>(&lt;0.00001***</td>
</tr>
<tr>
<td><strong>F-function</strong></td>
<td>F(7.1127) = 282.8409</td>
<td>F(7.1056) = 232.5456</td>
</tr>
<tr>
<td>p-value (F)</td>
<td>5.1e-234</td>
<td>7.2e-209</td>
</tr>
<tr>
<td><strong>Adj. R²</strong></td>
<td>0.635004</td>
<td>0.603923</td>
</tr>
</tbody>
</table>

* p-value <10%, ** p-value <5%, *** p-value <1%.
Source: the authors' own elaboration based on Bloomberg data.

We find that the dividend pay-out ratio for the Italian and Polish firms is influenced by dividend yield (shareholders’ return) and the natural logarithm of total assets (size). The higher the shareholders’ return on their investment (dividend yield) and the bigger the firm, the higher the dividend pay-out ratio. Moreover, the results show that the dividend paid to the shareholders of the Polish firms is influenced by the firms’ cash (liquidity) – a higher amount of liquidity available to the firm helps to obtain a higher dividend pay-out ratio.
However, for the shareholders of the Italian firms, we find the presence of a clearly different dividend distribution policy: the dividend pay-out ratio is based on the firms’ ROE (profitability), ROE variation (persistency), debt/equity ratio (leverage), and the last share price (market evaluation), and it is not influenced by cash (liquidity). For the Italian firms, the dividend pay-out is higher with lower company profitability and persistency of company profitability, with a lower leverage and a higher market value. Conversely, it is not influenced by the amount of cash available to the firm. In fact, the distribution of dividends is high also in the presence of a low company profitability (CONSOB, 2014). It seems that when there is a decrease in a firm’s profitability, shareholders’ escaping from their investment in the firm is prevented by means of dividend distribution. Furthermore, the dividend pay-out ratio is lower when the firm has a higher financial leverage, and it is higher when the value of the firm increases.

5. Conclusion

The results from our analysis do not align with the dividend disappearing thesis. Positive dividend decisions come from companies’ past financial results and past share prices. Furthermore, in the case of Italy, it concerns profitability, size, and the ability to create positive cash flow and dividend yield. For Poland, dividend yield seems to be the most crucial driver. It reached high values in the crisis years (3.1% in 2008 and 3.6% in 2009), when share prices dropped dramatically due to foreign investors’ “fire” withdrawal. However, the level of the dividend pay-out ratio decreases in crisis years for Polish companies. The emerging, newly developed Polish public stock market follows the patterns of the developed Italian market.

In Italy, the distribution of dividends continues to account for a significant proportion of the use of total resources, and nonfinancial firms tend to pay high dividends even if the profitability of the firm is decreasing.

The findings from this comparative analysis can offer a basis for future comparative research of other markets. In our paper, we did not examine the influence of changing variables on changes in the dividend pay-out ratio. In our opinion, future research on this topic should address changes (not only existence) in dividend pay-out ratios and changes in dividend yields. Such research requires another statistical model.
Bibliography

The paper discusses theoretical and practical aspects of a relevant and pertinent issue of the reasons behind late payments in B2B commercial transactions and their consequences. It aims at identifying reasons for late payments and pinpointing their economic consequences and costs. It also addresses the scale of the phenomenon, especially for payments overdue by more than 60 days, considered the most dangerous for regular performance of enterprises. The paper provides the results of studies on these aspects quoted in three most important reports by the following companies: Bisnode D&B, Atradius, Intrum Justitia. It formulates conclusions on both the reasons and consequences of late payments in B2B commercial transactions.

**Keywords:** late payment, payment delay, reasons behind late payments, consequences of late payments, costs of late payments, scale of late payments

**JEL Codes:** G 32 G 33, and G 35
Introduction

The research problem discussed in the paper focuses on the identification of the reasons, consequences (effects), and scale of late payments in the Polish economy compared to other, mainly European, countries. Deferred payment arrangements are a popular solution widely applied in B2B transactions (in EU Member States they are used in almost 50% of B2B sales), which nevertheless imply a classical credit risk (late or no payment). Hence exposure to risk is an inherent feature in businesses which offer deferred payment arrangements to their clients. To many enterprises in Poland, the practice of postponing the deadline for payment is part of their everyday reality and it determines the level of risk involved in doing business. Untimely payments may lead to the loss of profitability, liquidity and even to insolvency, which often ends in bankruptcy. The scale of late payments remains to be big, in Poland and globally, which is confirmed by reports of companies, such as Intrum Justitia, Atradius or Bisnode Dun & Bradstreet. According to the Bisnode Dun & Bradstreet’s report, in 2016 on average 62% of businesses in Europe declared payment delays. In Poland the proportion was 57.5%. Late payments exert a negative or even highly destructive impact upon the performance of individual businesses, industries, sectors or economies. The issue is very important to participants or animators of economic reality. Hence, it remains a pertinent and attractive area of research explorations, both in theoretical (research) and practical (application) dimensions. The above premises were decisive for choosing this research area and identifying research problems. The paper contributes to better presentation and description of the main reasons and consequences of late payments and demonstrates their scale (in particular, payments overdue by more than 60 days) in Poland and in other countries.

Three research questions have been formulated to examine the subject:
1. What are the reasons for late payments? Are they universal or specific?
2. Is the scale of late payments the same or different in various countries?
3. What are direct and indirect consequences and costs implied by payment delays and payment backlogs?

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2 As payments delayed by more than 60 days produce the most negative outcomes.
These questions link directly to four main theses:

1. The reasons for late payments are universal across the globe and are not country-specific; neither are they specific for a particular size of business nor for the sector in which it operates.

2. However, the frequency with which the reasons for late payments occur depends on a geographic region, a country, size of a business, and the sector in which a business operates.

3. Payment delays produce diverse, yet only negative, consequences for business performance and growth, as well as for entire economies and societies.

4. Payments overdue by more than 60 days and uncollectible accounts are the most destructive for the stability and economic standing of companies suffering from late payments.

1. Reasons for Late Payments

Late payment is a payment that has not been paid on time, i.e. in which a payment delay is involved. A payment delay can be described as the amount of time that passes between the deadline for payment originally agreed by 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 expiry of the deadline for payment 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.

Late payments, as often believed, are not just the effects of erroneous (wrong, incompetent) business conduct, especially with respect to granting trade credit or cultural aspects determining payment morale. Structures of business relations and cooperation chains within which businesses operate in specific sectors (economic power of suppliers and their customers), norms and hierarchies, relative market power, business cycle, financial infrastructure (financing available from banks), and

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3 Payment morale consists in proper payment conduct that translates into timely payment of one's liabilities (debts).
the legal system (norms and regulations) are much more powerful determinants of the late payments phenomenon\(^4\). In an ideal world, where all solvent enterprises could have immediate and continuous access to finance from diverse sources, late payments would be very rare. Businesses offering deferred payment arrangements would take account of the risk directly in their operating costs and their partners, who realise these costs and benefit from such arrangements making payments as timely as possible. Obviously, such an ideal world is far from business reality, especially in the emerging markets\(^5\).

Thus, we may feel inclined to say that the reasons for late payments have their exo- and endogenous roots.

There are many different reasons involved. They may be due to a customer's bankruptcy, his/her bad will or market practices resulting from his/her market power (the client does not pay though his/her financial standing is good and (s)he could pay the liabilities on time), from disputes over the quality or characteristics of supplied products or services\(^6\).

When discussing the reasons behind late payments we must supplement theoretical considerations with the results of studies that explore the issue across countries and sectors, in which businesses of various sizes operate. We shall use data from reports by Atradius and Intrum Justitia, the companies that for more than a decade have been monitoring the reasons for late payments in European countries.

In the survey conducted by Atradius on payment delays in domestic B2B model in 2017, companies from Eastern and Western Europe most often selected *Insufficient availability of funds* as a reason why debtors were unable to make payments on time. The second most important reason given by businesses in Eastern and Western Europe was a purposeful strategy of *Buyer using outstanding invoices as a form of financing (overdue liabilities)*. Interestingly, in Eastern Europe *Formal insolvency of the buyer (bankruptcy)* ranked third among the reasons for late payments. In Western Europe the same reason occupies the 6th position. Further three reasons are purely operational and link with errors in invoicing and mailing or with overcomplicated payment procedures. Thus, they are internal reasons, which may be eradicated by creditors if they put the right procedures in place. Another reason, i.e., *Disputes over the quality of supplied products or services* seems interesting and needs a closer


examination. It may be part of a specific “game” played by the debtors to delay the payment, which would correspond with the second most often selected reason: *Buyer using outstanding invoices as a form of financing (overdue liabilities)* and with poor *Administrative efficiency of Supplier (Creditor)* – which may be both an external and internal reason. Undoubtedly, *Inefficiencies of the banking system* should be interpreted as an external reason.

**Table 1. Reasons for payment delays in Eastern and Western European countries over the period 2015–2017**

<table>
<thead>
<tr>
<th>Region:</th>
<th>Western Europe</th>
<th>Eastern Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient availability of funds</td>
<td>52.6% 57.90% 51.40%</td>
<td>58.40% 64.40% 59.98%</td>
</tr>
<tr>
<td>Buyer using outstanding invoices as a form of financing</td>
<td>28.20% 28.20% 12.20%</td>
<td>32.40% 32.70% 8.07%</td>
</tr>
<tr>
<td>Formal insolvency of the buyer (bankruptcy)</td>
<td>13.10% 15.80% 8.70%</td>
<td>19.80% 18.80% 6.05%</td>
</tr>
<tr>
<td>Complexity of the payment procedure</td>
<td>18.20% 17.20% 16.30%</td>
<td>13.40% 13.00% 13.34%</td>
</tr>
<tr>
<td>Inefficiencies of the banking system</td>
<td>12.80% 12.50% 11.80%</td>
<td>11.20% 8.50% 11.43%</td>
</tr>
<tr>
<td>Disputes over the quality of supplied products or services</td>
<td>16.50% 15.50% 34.10%</td>
<td>10.80% 10.90% 34.75%</td>
</tr>
<tr>
<td>Incorrect information on the invoice</td>
<td>12.20% 11.40% 15.30%</td>
<td>9.80% 10.50% 8.97%</td>
</tr>
<tr>
<td>Goods delivered or services provided do not correspond to what was agreed in the contract</td>
<td>13.30% 11.40% 18.50%</td>
<td>9.00% 6.90% 24.22%</td>
</tr>
<tr>
<td>Invoice was sent to a wrong person (address)</td>
<td>7.50% 7.50% 11.00%</td>
<td>5.40% 7.50% 5.38%</td>
</tr>
</tbody>
</table>


Tables 2 & 3 present the reasons for late payments reported by companies in Western and Eastern Europe against the sector in which they operate and their respective size. For the past 3 years, *Insufficient availability of funds* and *Buyer using outstanding invoices as a form of financing* were two main reasons indicated by micro, small, medium-sized and large companies. Hence, they are universal and common reasons independent of business size and sector.

When analysing the data from Tables 1–3, we may come to a conclusion that the reasons for payment delays are universal. Yet, specifically countries of Eastern Europe reported bankruptcy of their business partners as a valid reason for late payments from domestic B2B customers.

In the opinion of Polish enterprises, two universal reasons prevail with *Insufficient availability of funds* clearly gaining in importance in recent years.
Table 2. Reasons for payment delays in Western European countries in different sectors and in companies of different sizes in the years 2015–2017

<table>
<thead>
<tr>
<th>Years:</th>
<th>Sector:</th>
<th>Domestic B2B customers</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>Manufacturing</td>
<td>Insufficient availability of funds</td>
<td>48.4%</td>
<td>19.4%</td>
<td>9.9%</td>
<td>18.2%</td>
<td>11.3%</td>
<td>13.5%</td>
<td>35.2%</td>
<td>18.6%</td>
<td>11.9%</td>
</tr>
<tr>
<td>2016</td>
<td>Manufacturing</td>
<td>Disputes over the quality of delivered products or services</td>
<td>58.6%</td>
<td>21.4%</td>
<td>13.3%</td>
<td>16.7%</td>
<td>13.5%</td>
<td>10.5%</td>
<td>30.3%</td>
<td>15.4%</td>
<td>6.5%</td>
</tr>
<tr>
<td>2017</td>
<td>Manufacturing</td>
<td>Goods delivered or services provided do not correspond with what was agreed in the contract</td>
<td>48.7%</td>
<td>24.5%</td>
<td>17.1%</td>
<td>17.4%</td>
<td>13.1%</td>
<td>16.2%</td>
<td>27.2%</td>
<td>12.3%</td>
<td>5.2%</td>
</tr>
<tr>
<td>2015</td>
<td>Wholesale/Retail/Distribution</td>
<td>Complexity of payment procedure</td>
<td>57.8%</td>
<td>17.2%</td>
<td>10.3%</td>
<td>13.5%</td>
<td>14.5%</td>
<td>8.2%</td>
<td>37.5%</td>
<td>24.3%</td>
<td>12.1%</td>
</tr>
<tr>
<td>2016</td>
<td>Wholesale/Retail/Distribution</td>
<td>Inefficiencies of the banking system</td>
<td>60.9%</td>
<td>12.8%</td>
<td>13.7%</td>
<td>13.3%</td>
<td>12.5%</td>
<td>9.6%</td>
<td>29.5%</td>
<td>17.9%</td>
<td>5.0%</td>
</tr>
<tr>
<td>2017</td>
<td>Wholesale/Retail/Distribution</td>
<td>Incorrect information on the invoice</td>
<td>54.1%</td>
<td>17.2%</td>
<td>16.7%</td>
<td>17.0%</td>
<td>12.2%</td>
<td>9.7%</td>
<td>30.1%</td>
<td>10.4%</td>
<td>5.9%</td>
</tr>
<tr>
<td>2015</td>
<td>Services</td>
<td>Buyer using outstanding invoices as a form of financing</td>
<td>51.0%</td>
<td>12.7%</td>
<td>7.5%</td>
<td>16.2%</td>
<td>11.3%</td>
<td>12.7%</td>
<td>32.5%</td>
<td>16.7%</td>
<td>10.2%</td>
</tr>
<tr>
<td>2016</td>
<td>Services</td>
<td>Formal insolvency of the buyer (bankruptcy)</td>
<td>56.0%</td>
<td>13.9%</td>
<td>9.3%</td>
<td>19.5%</td>
<td>11.6%</td>
<td>12.9%</td>
<td>26.5%</td>
<td>14.8%</td>
<td>9.2%</td>
</tr>
<tr>
<td>2017</td>
<td>Services</td>
<td>Invoice was sent to a wrong person (address)</td>
<td>53.9%</td>
<td>11.8%</td>
<td>9.3%</td>
<td>19.3%</td>
<td>12.9%</td>
<td>11.5%</td>
<td>27.7%</td>
<td>15.1%</td>
<td>9.7%</td>
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<tr>
<td>Years:</td>
<td>Company size:</td>
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<tr>
<td>2015</td>
<td>Micro</td>
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<tr>
<td>2016</td>
<td>Micro</td>
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<tr>
<td>2017</td>
<td>Micro</td>
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<tr>
<td>2015</td>
<td>SMEs</td>
<td></td>
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<tr>
<td>2016</td>
<td>SMEs</td>
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<tr>
<td>2017</td>
<td>SMEs</td>
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<tr>
<td>2015</td>
<td>Large</td>
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<tr>
<td>2016</td>
<td>Large</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>Large</td>
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<td></td>
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</tr>
</tbody>
</table>

Table 3. Reasons for payment delays in Eastern European countries in different sectors and in companies of different sizes in the years 2015–2017

<table>
<thead>
<tr>
<th>Years: Sector:</th>
<th>Domestic B2B customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic B2B customers</td>
<td>Insufficient availability of funds</td>
</tr>
<tr>
<td>2015 Manufacturing</td>
<td>58.5%</td>
</tr>
<tr>
<td>2016 Manufacturing</td>
<td>68.8%</td>
</tr>
<tr>
<td>2017 Manufacturing</td>
<td>64.0%</td>
</tr>
<tr>
<td>2015 Wholesale/Retail/Distribution</td>
<td>64.1%</td>
</tr>
<tr>
<td>2016 Wholesale Retail/Distribution</td>
<td>64.9%</td>
</tr>
<tr>
<td>2017 Wholesale/Retail/Distribution</td>
<td>57.9%</td>
</tr>
<tr>
<td>2015 Services</td>
<td>59.4%</td>
</tr>
<tr>
<td>2016 Services</td>
<td>61.0%</td>
</tr>
<tr>
<td>2017 Services</td>
<td>54.6%</td>
</tr>
<tr>
<td>Years: Company size:</td>
<td>Domestic B2B customers</td>
</tr>
<tr>
<td>Domestic B2B customers</td>
<td>Micro</td>
</tr>
<tr>
<td>2015 Micro</td>
<td>61.6%</td>
</tr>
<tr>
<td>2016 Micro</td>
<td>36.6%</td>
</tr>
<tr>
<td>2017 Micro</td>
<td>22.1%</td>
</tr>
<tr>
<td>2015 SMEs</td>
<td>21.2%</td>
</tr>
<tr>
<td>2016 SMEs</td>
<td>12.0%</td>
</tr>
<tr>
<td>2017 SMEs</td>
<td>12.0%</td>
</tr>
<tr>
<td>2015 Large</td>
<td>22.1%</td>
</tr>
<tr>
<td>2016 Large</td>
<td>16.9%</td>
</tr>
<tr>
<td>2017 Large</td>
<td>16.9%</td>
</tr>
</tbody>
</table>

Diagram 1. Reasons for payment delays in Poland in the period 2014–2017

### Table 4. Reasons for payment delays in Eastern European countries over the period 2015–2017

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient availability of funds</td>
<td>63.1%</td>
<td>41.8%</td>
<td>75.7%</td>
<td>60.6%</td>
<td>58.0%</td>
<td>63.5%</td>
<td>47.0%</td>
<td>75.7%</td>
<td>72.8%</td>
<td>66.1%</td>
<td>57.6%</td>
<td>39.2%</td>
<td>78.6%</td>
<td>73.5%</td>
<td>57.5%</td>
</tr>
<tr>
<td>Buyer using outstanding invoices as a form of financing</td>
<td>33.9%</td>
<td>47.7%</td>
<td>11.2%</td>
<td>32.3%</td>
<td>28.7%</td>
<td>39.6%</td>
<td>46.5%</td>
<td>14.9%</td>
<td>29.6%</td>
<td>30.0%</td>
<td>37.0%</td>
<td>57.8%</td>
<td>13.6%</td>
<td>26.5%</td>
<td>32.6%</td>
</tr>
<tr>
<td>Formal insolvency of the buyer (bankruptcy)</td>
<td>23.8%</td>
<td>30.8%</td>
<td>2.8%</td>
<td>8.7%</td>
<td>23.6%</td>
<td>21.4%</td>
<td>35.5%</td>
<td>4.1%</td>
<td>15.4%</td>
<td>14.4%</td>
<td>26.1%</td>
<td>42.2%</td>
<td>15.6%</td>
<td>17.3%</td>
<td>16.6%</td>
</tr>
<tr>
<td>Complexity of payment procedure</td>
<td>20.2%</td>
<td>15.1%</td>
<td>0.9%</td>
<td>2.4%</td>
<td>20.7%</td>
<td>15.1%</td>
<td>12.6%</td>
<td>10.1%</td>
<td>7.4%</td>
<td>18.9%</td>
<td>15.2%</td>
<td>13.1%</td>
<td>9.1%</td>
<td>6.8%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Inefficiencies of the banking system</td>
<td>13.1%</td>
<td>8.7%</td>
<td>1.9%</td>
<td>2.4%</td>
<td>24.1%</td>
<td>11.3%</td>
<td>9.3%</td>
<td>1.4%</td>
<td>0.6%</td>
<td>18.3%</td>
<td>12.5%</td>
<td>8.5%</td>
<td>3.3%</td>
<td>4.3%</td>
<td>25.9%</td>
</tr>
<tr>
<td>Incorrect information in invoices</td>
<td>10.7%</td>
<td>11.1%</td>
<td>4.7%</td>
<td>4.7%</td>
<td>14.4%</td>
<td>12.6%</td>
<td>12.0%</td>
<td>6.1%</td>
<td>5.6%</td>
<td>15.0%</td>
<td>10.3%</td>
<td>9.6%</td>
<td>2.6%</td>
<td>4.9%</td>
<td>11.4%</td>
</tr>
<tr>
<td>Goods delivered or services rendered do not correspond with what was agreed in the contract</td>
<td>8.3%</td>
<td>9.3%</td>
<td>2.8%</td>
<td>3.2%</td>
<td>17.2%</td>
<td>7.6%</td>
<td>6.6%</td>
<td>1.4%</td>
<td>4.3%</td>
<td>13.3%</td>
<td>10.3%</td>
<td>5.5%</td>
<td>0.7%</td>
<td>1.2%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Disputes over the quality of delivered products or services</td>
<td>7.1%</td>
<td>18.0%</td>
<td>2.8%</td>
<td>3.2%</td>
<td>17.8%</td>
<td>8.2%</td>
<td>20.2%</td>
<td>4.7%</td>
<td>8.6%</td>
<td>11.1%</td>
<td>12.5%</td>
<td>15.1%</td>
<td>0.7%</td>
<td>3.7%</td>
<td>10.4%</td>
</tr>
<tr>
<td>Invoices sent to a wrong person (address)</td>
<td>5.4%</td>
<td>6.4%</td>
<td>5.6%</td>
<td>5.6%</td>
<td>4.0%</td>
<td>5.7%</td>
<td>10.4%</td>
<td>7.4%</td>
<td>8.0%</td>
<td>5.6%</td>
<td>4.9%</td>
<td>4.5%</td>
<td>4.6%</td>
<td>5.6%</td>
<td>7.3%</td>
</tr>
</tbody>
</table>

What differs Poland from other Eastern European countries is a high percentage of *Insufficient availability of funds* answers, which scored higher only in Hungary. *Formal insolvency of the buyer (bankruptcy)* was also often mentioned as a reason for late payments; a higher percentage was reported only in the Czech Republic. Surprisingly, *Complexity of payment procedure* scored over 20%, similarly in Turkey, as most payments are online bank transfers for invoices sent mostly online.

**Diagram 2. Main reasons for payment delays in 2017**

![Diagram showing reasons for payment delays in different regions]


In most European countries *Debtors in financial difficulties* are considered the main reasons for late payments. In some countries, such as: Denmark, Sweden, Norway, the United Kingdom, and Ireland *administrative inefficiency of debtors* is blamed for payment delays. In Poland, unlike in other countries, *debtors in financial difficulties* and *intentional late payments* are equally often mentioned as the reasons for payment delays.

The results of the survey conducted by Atradius confirm those obtained by Intrum Justitia. Both point to *Debtors in financial difficulties* and *Intentional late payment* as the main reasons for payment delays. Other reasons include *Disputes regarding goods and services delivered* and, interestingly, *Operating (administrative) inefficiencies* are mentioned but they are attributed to debtors (customers) not to the creditor as it is the case in Atradius’ survey. That confirms universal nature of the reasons for late payments. The results obtained by Atradius and Intrum Justitia are also confirmed by Kantar Millwardbrown’s survey commissioned by the InfoMonitor Economic Information Office [Polish: BIG – Biuro Informacji Gospodarczej]. Interestingly, the results of the survey suggest the main reason is *Payment backlog* followed by *Debtors in financial difficulties* and *Intentional late payment*.
Table 5. Main reasons for payment delays in European countries in 2017

<table>
<thead>
<tr>
<th></th>
<th>Debtors in financial difficulties</th>
<th>Disputes regarding goods and services delivered</th>
<th>Administrative inefficiency of your clients</th>
<th>Intentional late payments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>38% 36% 46% 13% 16% 8%</td>
<td>60% 63% 49%</td>
<td>48% 48% 41%</td>
<td></td>
</tr>
<tr>
<td>Lithuania</td>
<td>51% 63% 95% 5% 4% 22%</td>
<td>13% 18% 57%</td>
<td>25% 35% 61%</td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>53% 54% 51% 20% 14% 5%</td>
<td>29% 30% 27%</td>
<td>46% 56% 39%</td>
<td></td>
</tr>
<tr>
<td>Serbia</td>
<td>77% 87% 90% 10% 16% 24%</td>
<td>20% 23% 56%</td>
<td>22% 10% 54%</td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>72% 65% 51% 10% 13% 5%</td>
<td>23% 22% 28%</td>
<td>36% 33% 28%</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>68% 70% 78% 12% 12% 12%</td>
<td>57% 55% 54%</td>
<td>69% 64% 68%</td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td>55% 75% 81% 6% 14% 28%</td>
<td>20% 35% 47%</td>
<td>49% 69% 66%</td>
<td></td>
</tr>
<tr>
<td>Latvia</td>
<td>75% 66% 92% 9% 13% 16%</td>
<td>13% 23% 39%</td>
<td>17% 31% 50%</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>71% 75% 82% 28% 28% 33%</td>
<td>51% 49% 47%</td>
<td>63% 62% 64%</td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>45% 64% 48% 16% 17% 2%</td>
<td>35% 48% 15%</td>
<td>45% 62% 28%</td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>65% 68% 60% 12% 81% 68%</td>
<td>46% 36% 57%</td>
<td>41% 41% 53%</td>
<td></td>
</tr>
<tr>
<td>The Netherlands</td>
<td>60% 63% 60% 24% 24% 22%</td>
<td>56% 61% 70%</td>
<td>55% 62% 58%</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>56% 60% 65% 17% 17% 18%</td>
<td>67% 69% 69%</td>
<td>69% 64% 69%</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>77% 92% 91% 20% 9% 6%</td>
<td>33% 32% 15%</td>
<td>74% 81% 87%</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>75% 77% 74% 24% 20% 18%</td>
<td>60% 65% 53%</td>
<td>71% 66% 66%</td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>85% 77% 82% 12% 9% 9%</td>
<td>70% 55% 42%</td>
<td>68% 64% 70%</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>72% 89% 88% 17% 10% 17%</td>
<td>30% 33% 39%</td>
<td>38% 65% 64%</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>45% 54% 75% 17% 13% 20%</td>
<td>21% 23% 39%</td>
<td>35% 39% 64%</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>84% 85% 84% 18% 53% 7%</td>
<td>28% 41% 17%</td>
<td>38% 30% 64%</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>63% 74% 81% 21% 22% 24%</td>
<td>65% 61% 54%</td>
<td>72% 75% 78%</td>
<td></td>
</tr>
<tr>
<td>Bosnia &amp; Herzegovina</td>
<td>75% 90% 86% 15% 62% 45%</td>
<td>33% 62% 65%</td>
<td>16% 57% 60%</td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>64% 76% 67% 31% 27% 42%</td>
<td>74% 66% 76%</td>
<td>65% 68% 74%</td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>66% 54% 60% 12% 14% 22%</td>
<td>35% 12% 16%</td>
<td>49% 24% 33%</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>51% 41% 39% 26% 20% 13%</td>
<td>64% 56% 43%</td>
<td>56% 60% 46%</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>63% 76% 83% 12% 10% 21%</td>
<td>37% 33% 44%</td>
<td>58% 55% 71%</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>54% 39% 69% 35% 60% 23%</td>
<td>72% 47% 51%</td>
<td>70% 50% 62%</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>89% 84% 82% 25% 21% 17%</td>
<td>52% 42% 42%</td>
<td>45% 75% 78%</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>86% 86% 93% 9% 6% 26%</td>
<td>24% 27% 55%</td>
<td>50% 54% 68%</td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>82% 91% 94% 20% 13% 9%</td>
<td>49% 46% 40%</td>
<td>62% 51% 44%</td>
<td></td>
</tr>
</tbody>
</table>

Diagram 3. Reasons for payment delays (number of businesses selecting a particular reason)


2. Scale of Payments Delayed for over 60 Days

When it comes to payments overdue for over 60 days – which cannot be considered natural and pose a real threat to everyday business and to the survival of companies that experience them – Poland performs much worse than other countries. According to the studies conducted by Bisnode Dun & Bradstreet in 2016, as many as 20% of Polish companies suffered from payments delayed for over 60 days, which earned the country no. 2 position in this shameful ranking in Europe, immediately after Romania.

A less pessimistic outlook for companies whose receivables are late by over 60 days is painted by Atradius’ survey. Its latest report shows that such delays were experienced by only 8% of companies in Poland.

Thus, it is worth juxtaposing the results of surveys conducted by the two companies with other surveys. According to Kantar Millwardbrown’s survey commissioned by the BIG InfoMonitor at the end of 2016, 11% firms delayed payments for over 60 days. On the other hand, statistical data from BIG InfoMonitor database at the end of December 2016 indicated that 4.4% companies had liabilities late by more

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7 BIG InfoMonitor, Raport Indeks Zatorów Platniczych, December 2016, p. 2.
8 Liabilities from InfoMonitor database cover only liabilities other than loans.
than 60 days of the minimum amount of PLN 500\(^9\). Although the situation is different in different sectors, relatively\(^{10}\) the biggest number of such companies could be found in Water supply, sewerage, waste management, and remediation activities, while the fewest originated from Public administration and in Human health.

**Diagram 4. Percentage of companies with payments delayed for over 60 days in 2016**


**Diagram 5. Percentage of companies with receivables delayed by over 60 days in 2016**


\(^9\) Late payments do not include late payments of bank loans.

\(^{10}\) Share of companies from a particular section with minimum payments of PLN 500 late by more than 60 days in the total population of businesses in a given section.
Table 6. Proportion of enterprises with the minimum amount of liabilities of PLN 500 late by more than 60 days in individual sectors at the end of 2016

<table>
<thead>
<tr>
<th>Total of all sections</th>
<th>4.4%</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Agriculture, forestry and fishing</td>
<td>3.1%</td>
</tr>
<tr>
<td>B Mining and quarrying</td>
<td>6.8%</td>
</tr>
<tr>
<td>C Manufacturing</td>
<td>4.8%</td>
</tr>
<tr>
<td>D Electricity, gas steam and air conditioning supply</td>
<td>3.3%</td>
</tr>
<tr>
<td>E Water supply, sewerage, waste management and remediation activities</td>
<td>7.6%</td>
</tr>
<tr>
<td>F Construction</td>
<td>5.4%</td>
</tr>
<tr>
<td>G Trade; repair of motor vehicles</td>
<td>5.0%</td>
</tr>
<tr>
<td>H Transportation and storage</td>
<td>6.5%</td>
</tr>
<tr>
<td>I Accommodation and catering</td>
<td>5.8%</td>
</tr>
<tr>
<td>J Information and communications</td>
<td>3.6%</td>
</tr>
<tr>
<td>K Financial and insurance activities</td>
<td>5.0%</td>
</tr>
<tr>
<td>L Real estate activities</td>
<td>3.8%</td>
</tr>
<tr>
<td>M Professional, scientific and technical activities</td>
<td>2.9%</td>
</tr>
<tr>
<td>N Administrative and support services</td>
<td>4.4%</td>
</tr>
<tr>
<td>O Public administration and defence, compulsory social insurance</td>
<td>0.1%</td>
</tr>
<tr>
<td>P Education</td>
<td>2.0%</td>
</tr>
<tr>
<td>Q Human health and social work activities</td>
<td>1.1%</td>
</tr>
<tr>
<td>R Arts, entertainment and recreation</td>
<td>3.5%</td>
</tr>
<tr>
<td>S Other services</td>
<td>2.2%</td>
</tr>
</tbody>
</table>


The geographic distribution of companies in Poland whose payments are late by over 60 days is also worth examining. The biggest percentage of such companies can be found in Śląskie Province – 6.1% and in Kujawsko – Pomorskie – 5.7%, the smallest in provinces in South-Eastern Poland: Podkarpackie – 3.4%, Podlaskie – 3.6%, and Małopolskie – 3.7%. Payment morality of Polish companies is differentiated and depends on their location. Undoubtedly, it is influenced by cultural aspects connected with traditional, conservative values typical of South-Eastern Poland. A similar differentiation can be observed when looking at loan repayment performance of micro-entrepreneurs and individuals, which is confirmed by numerous analyses of the Credit Information Bureau [PL: Biuro Informacji Kredytowej].

Moreover, we need to note that the number of companies whose accounts receivable are late by over 60 days differs depending on the size of an enterprise. According to the survey conducted by Bisnode Dun & Bradstreet, almost every fifth micro-entrepreneur reported payments late by over 60 days while among large companies
the problem affected only every twentieth business. Thus, we may conclude that the smaller a company the higher the percentage with accounts late for more than 60 days.

Diagram 6. Share of companies from a given province with payments of minimum PLN 500 late by more than 60 days in the total business population in a province at the end of 2016

![Diagram showing share of companies from various provinces with payments late by more than 60 days.]


Diagram 7. Share of enterprises in Poland in 2016 with payments late by more than 60 days by business size

![Diagram showing share of enterprises in Poland in 2016 with payments late by more than 60 days by business size.]


Interestingly enough, besides Romania and Greece only Poland has got such a high percentage of micro-entrepreneurs with payments late by over 60 days.
Unfortunately, the surveys conducted by Bisnode Dun & Bradstreet and Atradius confirm the growing number of companies with accounts receivable late by more than 60 days in Poland.

**Diagram 8. Share of companies with payments delayed by more than 60 days in Poland from 2011 until 2016**

<table>
<thead>
<tr>
<th>Year</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>12.8%</td>
</tr>
<tr>
<td>2012</td>
<td>14.9%</td>
</tr>
<tr>
<td>2013</td>
<td>12.9%</td>
</tr>
<tr>
<td>2014</td>
<td>11.2%</td>
</tr>
<tr>
<td>2015</td>
<td>18.1%</td>
</tr>
<tr>
<td>2016</td>
<td>19.3%</td>
</tr>
</tbody>
</table>


**Diagrams 9. Structure of payments delayed by over 60 days in Poland from 2014 until 2016, domestic business partners**

<table>
<thead>
<tr>
<th>Year</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>3.4%</td>
</tr>
<tr>
<td>2015</td>
<td>5.6%</td>
</tr>
<tr>
<td>2016</td>
<td>8.0%</td>
</tr>
</tbody>
</table>


### 3. Consequences of Late Payments

As much as we can identify the reasons for late payments, we can also point to their consequences and costs entailed by them. The consequences are only negative as they are directly linked with the need to bear additional costs of business operations and indirectly with the cost of the lost opportunity. If a company had
no expenses related to late payments, the funds could be spent on its growth. Hence, it is necessary to identify the effects of late payments. However, the identification of total costs of late payments, i.e., real expenses and the lost opportunity, is a real challenge as they are not distinguished explicitly in books of accounts. To calculate them, we must carry out a questionnaire study among entrepreneurs.

We may not limit costs of late payments to direct costs connected with maintaining financial liquidity by businesses with a high share of overdue accounts receivable, which is why their revenue from sales does not generate cash inflows. They must finance their current operations with debt capital (loans and borrowings), for which they pay interest rates, which, in turn, reduces profitability of their business and engaged capital. Companies also pay high costs of monitoring late payments from their business partners and costs of their collection. Untimely payments from business partners produce real hurdles to the growth of businesses and, ultimately, may even lead to their closure or bankruptcy. J. Shopowski argues that one out of four bankruptcies in the EU was caused by late payments for goods delivered or services rendered, which led to the loss of almost 450,000 jobs annually\textsuperscript{11}. We should not forget alternative costs reflected in reduced investment activity caused by disturbances in financing current operations\textsuperscript{12}. That is confirmed by P. Białowolski and A. Łaszek, who, basing on conducted desk studies, clearly indicate that late payments and payment backlogs exert a negative impact upon economic growth and make investing more difficult\textsuperscript{13}.

Further negative outcomes of late payments are identified by S. Grzelczak, who claims that untimely payment or non-payment induces business community to think that they should not trust other entrepreneurs, even their long-term business partners. Hence, it is safer and more convenient to request cash prepayments for products or services or to consider moving the business abroad where payment morality is higher. As a result, there is an overall mistrust, positive relationships and economic links decay and they get replaced with suspicion and mistrust, which instigate safeguard clauses and intensive legal assistance. That, in turn, increases the cost of doing business and, in extreme cases, leads to a growing wave of bankruptcies. All these factors impede growth\textsuperscript{14}.

\begin{thebibliography}{9}
\end{thebibliography}
As we should not examine the consequences of late payments only at the theoretical level, we need to conduct questionnaire based studies to identify these effects. To this end, we may use an international survey conducted by Intrum Justitia. According to the latest edition of the survey from 2017, the major global consequences of late payments included: limited (reduced) liquidity indicated by 42% of companies, loss of income (lost opportunity cost) (40%), reduced growth potential (33%), additional external costs (29%), threat to the survival of the business (27%), not hiring new staff (25%), and the need to lay off staff (19%).

Diagram 10. Consequences of late payments to companies

![Diagram 10](image_url)


Diagram 11. Consequences of late payments depending on the country of a company’s origin (2017) in %

![Diagram 11](image_url)

Remarkably, individual consequences of late payments depend on the region of Europe from which a company originates. The biggest consequences of late payments are experienced by companies from Southern Europe, while the smallest in Northern Europe. Surprisingly, liquidity squeeze is the major consequence for companies from the South of Europe (74% of indications) and from Central Europe (45%). For companies from Northern and Eastern Europe loss of income is more important than liquidity squeeze.

Besides identifying the consequences of late payments, we should also examine how they impact businesses. The data in Diagram 12 is rather surprising. For five out of seven consequences a high and medium impact is very close and ranges between 35% and 39%.

**Diagram 12. Consequences of late payments for companies by the strength of impact – 2017**

<table>
<thead>
<tr>
<th></th>
<th>Medium and high impact</th>
<th>Low impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional interest costs for your company</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td>Loss of income</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>Liquidity squeeze</td>
<td>39%</td>
<td>61%</td>
</tr>
<tr>
<td>Threat to survival</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>Prohibiting growth of the company</td>
<td>36%</td>
<td>64%</td>
</tr>
<tr>
<td>Dismissing employees</td>
<td>18%</td>
<td>82%</td>
</tr>
<tr>
<td>Not hiring new employees</td>
<td>21%</td>
<td>79%</td>
</tr>
</tbody>
</table>


The first cyclical study in Poland which identifies the consequences of late payments is the *Portfel należności polskich przedsiębiorstw* [*Portfolio of accounts receivable of Polish enterprises*] conducted since 2009. It not only allows assessing the impact of payment delays upon operating costs of enterprises but also the consequences of delays for companies. The survey is a joint project of the National Debt Register of the Economic Information Office SA [PL: Krajowy Rejestr Długów Biura Informacji Gospodarczej SA] and the Conference of Financial Companies in Poland [PL: Konferencja Przedsiębiorstw Finansowych w Polsce]. Based on average results
of the survey for the period 2015–2016, P. Białowolski and A. Łaszek presented the consequences of payment delays as identified by Polish companies. The most frequent consequence of late payments is payment backlog. As many as 27.9% of enterprises mention difficulties in paying their own liabilities due to untimely payments made to them by their customers. The second and much less intensive effect is the need to restrict investment activities. It is experienced by 26.8% companies in the country. Other consequences are less relevant. For the reasons pertaining to late payments 7.5% companies in Poland declare that they had to refrain from placing new products on the market and 7.2% had to reduce employment or wages; 4.5% enterprises were forced to increase prices\textsuperscript{15}.

Similar, although slightly different consequences of delays in their accounts receivable are identified by Polish companies in the study conducted on a regular basis by Intrum Justitia. In its latest edition in 2017 Polish companies that experience a high and medium impact of a particular consequence upon their current operations mentioned four main consequences, which they experience at almost equal levels: liquidity squeeze (for 39% companies its impact is medium and high), loss of income (38%), reduced growth potential (38%), and threat to survival (36%).

Diagram 13. Consequences of late payments to Polish companies by the strength of impact (from medium to high)

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{diagram13.png}
\end{figure}


Under the *Portfolio of accounts receivable of Polish enterprises* study the authors examined costs born by enterprises as a consequence of late payments. Within the framework of the study, costs of late payments to enterprises include: (1) losses resulting from non-payment, (2) costs of interest, (3) costs of debt monitoring and collection, (4) costs of extensive legal procedures designed to reduce the exposure to payment delays, (5) costs of withdrawing from some highly risky markets. The distribution of costs entailed by late payments, as well as their average value by groups of enterprises of a certain size from selected industries, are presented in Table 7. Costs of late payments to the whole economy reach 6.3 of total costs paid by enterprises every year. The total cost entailed by payment delays exceeds PLN 100 bn\(^\text{16}\).

### Table 7. Distribution of costs entailed by late payments

<table>
<thead>
<tr>
<th>Section</th>
<th>Costs entailed by delays in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>6.6</td>
</tr>
<tr>
<td>Industry</td>
<td>4.1</td>
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<tr>
<td>Construction</td>
<td>8.4</td>
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<tr>
<td>Trade</td>
<td>5.3</td>
</tr>
<tr>
<td>Finance</td>
<td>10.4</td>
</tr>
<tr>
<td>Telecoms</td>
<td>8.2</td>
</tr>
<tr>
<td>Services</td>
<td>7.3</td>
</tr>
<tr>
<td>Company size</td>
<td>Costs entailed by delays in %</td>
</tr>
<tr>
<td>Micro</td>
<td>8.0</td>
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<tr>
<td>Small</td>
<td>5.5</td>
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<tr>
<td>Medium</td>
<td>3.9</td>
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<tr>
<td>Large</td>
<td>3.3</td>
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Enterprises in construction and telecom industries must be prepared to face high costs exceeding 8%. In the construction industry problems are most probably linked with the specificity of the sector, where birth and death rates of companies are very high and quite a big proportion of revenue is generated in the shadow economy. For telecom companies costs are also due to the dispersed population of their customers, which disturbs monitoring and an efficient collection of receivables. In most cases amounts involved in overdue payments are small, which means their collection is little

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The smallest costs of payment delays burden manufacturing companies. They are slightly higher than 4% of total costs. This is surely the effect of their stable portfolios composed of large clients, who are easy targets for monitoring and can be pressed if they are in delay. Medium-sized and large companies much more effectively manage their costs entailed by late payments and they can reduce them to less than 4%. In large companies costs of payment delays are even lower and on average amount to only 3.3%, i.e. by over 70% less than in micro-businesses. It makes the life of enterprises operating at a big scale significantly easier and improves their abilities to cope with market hardships. In general, micro companies pay the highest cost of payment delays of their business partners, which is why they are the most affected by the problem. Even in small companies with 10–49 members of staff, costs of late payments are much lower and they amount to ca. 5.5% of total costs, i.e., by ca. 1/3 less than in micro companies\(^\text{17}\).

**Conclusion**

Based on the secondary research and analyses of major studies on reasons behind late payments, we may conclude that they entail:

1. poor financial standing of debtors who do not have enough funds and their financial difficulties or even insolvency (bankruptcy);
2. intended payment delays;
3. disputes over the quality of delivered goods and services;
4. operating (administrative) inefficiency on the side of a creditor as well as a debtor (customer).

All these reasons are universal by nature. Summing up our considerations on the negative impact of consequences and costs of late payments upon the financial performance of enterprises, we may formulate two main general and universal conclusions:

1. Payments delayed against the deadlines agreed in contracts or specified in general terms of trade between the parties surely impact the creditor’s liquidity and his/her ability to provide stable financial foundations for his/her business strategy often leading to staff dismissals or at least not hiring new staff. Hence, they are obstacles to growth especially in micro enterprises.
2. Another negative effect of late commercial payments is the need to use external financing in the credit market (loans) or borrowings for which they pay interests

or raise funds in the capital market (corporate bonds), any of which influences profitability of their respective businesses as well as profitability of the capital they use.

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Structured Analytic Techniques: Taxonomy and Technique Selection for Information and Intelligence Analysis Practitioners

**Abstract**

The purpose of this article is to propose a new taxonomy and selection of structured analytic techniques for information and intelligence analysis practitioners. The presented taxonomy and selection of structured analytic techniques are based on the author’s experience in information and intelligence analysis as well as in training analysts in the use of those techniques. The presented classification and selection of techniques have resulted from the author’s attempts to improve teaching and learning process of the analysts who were novice to structured analytic techniques. From the author’s experience, a well-constructed taxonomy aids novice analysts in understanding a purpose of used techniques and selecting the best-suited technique for a given analytic problem. In the article the author will first offer definitions of analysis, analytic process and analytic spectrum. This will be followed by a review of the four general categories of analytic methods used in intelligence analysis. The author will further explain the origins, concepts and characteristics of both structured analysis and structured analytic techniques. Next, structured analytic techniques will be discussed in the context of the Intelligence Cycle. Following this, the author will review several existing taxonomies of structured analytic techniques. The article will conclude with a taxonomy and a selection of techniques for the information and intelligence analysis practitioners, based on a review of the literature augmented by the author’s professional experience.
1. Introduction

The technological and information revolution we have been witnessing over the last 20 years has caused an unprecedented amount of data and information to be available everywhere and for everyone. MindMetre Research in 2014 reported that one-nineteenth of all existing data had been produced after the year 2010. The same report noted that humanity sends 204 million electronic messages and exchanges 640 000 GB of information every single minute. One may say, we are drowning in a flood of information and data. The human brain has its working memory. It works like a computer memory, and because it has a limited capacity, it stores and processes a very limited amount of current information. According to George A. Miller, this short-term memory can store, on average, up to 7 plus or minus 2 bits of information. This number is called “the Miller’s magic number” and is used to describe the human brain’s cognitive capability for presented information. For the intelligence and information analyst, information cognition is doubly complicated. First, there is a problem with volume. A human brain cannot possibly process the sheer amount of available information and data. Then, one cannot forget about data differentiation (SIGINT, GEOINT, biometric, video, etc.), which is expected to become wider every year as a result of the ongoing technological revolution.

The enormous amount and different types or forms of available data and information can cause “information overload”. The information overload concept was introduced by Alvin Toffler, and describes a condition when the overabundance of the available information is paralysing the decision-making process instead of improving it. In addition to the information overload, one has to consider the so-called “cognitive overload” of the brain. According to Lucy Jo Palladino, cognitive overload occurs

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when we try to process large amounts of data while multitasking in our brain. The cognitive overload manifests itself with stress, indecisiveness, loss of concentration and a significant reduction in the brain's analytic capabilities⁴.

Some argue that the goal of intelligence activities is to gather as much data and information as possible to draw a picture of the situation as close as possible to the reality. States, military organizations and international corporations spend enormous amounts of money investing in top-end intelligence collection systems and platforms. However, in light of the aforementioned limited capabilities to process data already on hand, one should consider concentrating on the processing and analysis of data and information, rather than on collection. As B.E. Bensoussan and C.S. Fleisher claim, “In today's world of information overload, collecting more or new data or information is not (…) the key issue. Instead, examining and evaluating the information through analysis is the key to defining appropriate strategies and decisions. This process requires knowledge, skills, time, and effort”⁵.

One possible solution to the problem of limited capabilities of data and information processing is automated systems and software. Another is to significantly increase the number of employed analysts. As both solutions would be very expensive, improving existing procedures and analytic techniques is the solution to be considered, combined with introducing structured analytic techniques, and training analysts in using them.

The main task of contemporary supervisors and managers is to develop or participate in developing and defining tactics and strategies for organizations they represent. Being distinctive on the market is one of the basic conditions for an organization’s success. In the context of strategy, it means developing unique and distinctive processes, relationships, and resources within organization, in order to ensure competitiveness on the market. Organizations that are able to develop these distinctive organizational competencies have the best chance to gain competitive advantage⁶. Organizations must have abilities to analyse and process information in order to effectively develop strategies. The analytic techniques facilitate the analysis of current and historical events in order to predict the future and thus, support the decision-making process resulting in organizational strategies. Structured analytic techniques are used within military organizations, intelligence, and law enforcement organizations. There is no reason against using them in business, local government and other sectors as well.

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⁶ Ibidem, p. 2.
The purpose of this article is to provide a proposed taxonomy and selection of structured analytic techniques. The presented taxonomy and selection of structured analytic techniques is based on the author's experience in information and intelligence analysis as well as in training analysts in the use of those techniques. While training prospective analysts, the author noticed the importance of having a well-designed taxonomy. Such a taxonomy aids novice analysts in understanding the purpose of used techniques and selecting the best-suited technique for a given analytic problem. This significantly helps in the learning process and assists analysts when they start independently using those techniques in their work outside classrooms. In the author’s judgement, the existing taxonomies of structured techniques should be complemented with two categories of techniques, i.e. environment scanning and assessment and source and information evaluation techniques. Those two categories are crucially important for an analyst in the early years of practising information and intelligence analysis. Thus, the proposed selection of techniques is tailored for the novice analysts and meant to assist them in selecting techniques. In order to achieve the stated purpose of the article, the author will start with offering definitions of analysis, analytic process and analytic spectrum. This will be followed by a review of the four general categories of analytic methods used in intelligence analysis. The author will further explain the origins, concepts and characteristics of both structured analysis and structured analytic techniques. Next, structured analytic techniques will be discussed in the context of the Intelligence Cycle. Following this, the author will review several existing taxonomies of the structured analytic techniques. The article will conclude with the taxonomy and a selection of techniques for the information and intelligence analysis practitioners, based on a review of the literature augmented by the author’s professional experience.

2. Analysis, Analytical Process and Analytic Spectrum

Analysis can be defined as an activity of “the examination of a problem or phenomenon from different angles in order to understand or explain it” or as a product of the aforesaid activity in the form of an explanation or description. NATO AJP-2 Allied Joint Doctrine for Intelligence, Counter-Intelligence and Security define analysis as a “step in the processing phase of the intelligence cycle in which information is subjected to review in order to identify significant facts for subsequent interpretation”.

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Analysis together with integration constitutes the third step in the processing stage of the Intelligence Cycle⁹.

Examining the above definitions, one can easily notice they do not mention or refer to the future, prediction or prognosis of events or an enemy’s/competitor’s actions. Those definitions only describe reactive analysis of past and current events; therefore, they do not describe all the stages and steps of the Intelligence Cycle.

The purpose of intelligence analysis is to evaluate, integrate and interpret information in order to identify threats and opportunities, and to provide a warning and reduce uncertainty for the decision maker¹⁰. However, its essence is predicting and forecasting. References to these activities are found in the definition of the scientific-research institute RAND, which defines intelligence analysis as a process by which the information collected about an enemy is used to answer tactical questions about current operations or to predict future behavior¹¹. Defined in this way, the process of analysis already includes the full range (spectrum) analysis from “understanding or explanation” to “predicting” within the limits the analytical process is carried out (see Figure 1).

**Figure 1. Analytic process**

![Analytic process diagram]


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The analytic process consists of six steps: defining the problem, generating hypotheses, information gathering, evaluation of the hypotheses, selection of the most probable hypothesis, and continuous monitoring in search of new information.  

Define the problem. An analyst should start working on the problem with ensuring that (s)he is asking, and (s)he was asked, the right questions. He/she should not hesitate to turn to the authors or superiors to clarify doubts or provide additional detailed questions. Often, due to the fact that (s)he is an expert in the field, the analyst will see the problem differently and feel that the questions are inappropriate. In such cases, the analyst should not hesitate to give suggestions to the supervisor and the authors of the questions.  

Generate hypotheses. In this step, all likely hypotheses are identified. Please note that at this stage we do not dismiss any of the hypotheses based on a lack of information or evidence to support it.  

Gather information. While gathering information, the analyst cannot be limited only to information that is delivered to him/her. (S)he should actively seek facts and information using all available sensors and resources (Requests for Information-RFIs, or self-searching open sources). It should be noted that the analyst must seek information and facts to help evaluate all the hypotheses (both supporting them and questioning), and not only those that seem to him/her to be the most likely; and refrain from the evaluation of the hypotheses until the end of gathering information.  

Evaluate the hypotheses. Based on the available information and assumptions the analyst develops arguments against each of the generated hypotheses.  

Select the most probable hypothesis. Selection of the most probable hypothesis means refuting hypotheses (instead of confirming them). The hypothesis with the least amount of evidence against it is usually the most likely one to be true.  

Continuously search for new information. While the analyst performs the steps of the analytic process, the situation concerning the analytical problem may change or the new information and facts either negating the most likely hypothesis, or supporting one of the rejected hypotheses may appear. For this reason, the analyst should seek new information and facts through the entire analytical process.  

In solving analytical problems and executing the analytic process, the analyst “moves” through the four stages of the analytic spectrum. In order to engage in the last, and at the same time, the most difficult stage of the analytic spectrum – estimative analysis – the analyst has to work through all the stages of the analytic spectrum. These successive stages: descriptive, explanatory, evaluative and estimative analysis,

guide the analyst in search for answers to the analytical problem (s)he is working on (see Figure 2).

**Figure 2. The Analytic Spectrum**


At the stage of descriptive analysis, the analyst answers the questions Who? What? How? When? and Where?, asked in relation to the analysed event, the situation, the problem or group of individuals. Products of the descriptive analysis inform and summarize the knowledge and information about people, objects, situations, etc. The descriptive analysis includes both Basic Intelligence and Current Intelligence products.

At the explanatory analysis stage, the analyst is looking for an answer to the question why the event, problem or situation has occurred. Target Intelligence and Current Intelligence products presenting trends are typical for this stage.

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15 Ibidem.
Descriptive and explanatory analysis are the necessary minimum two stages of each analytic process. But they are not sufficient to solve complex and complicated analytical problems demanding recommendations or forecasting, and therefore, the transition to the consecutive stages of the analytic spectrum.

The structured analytic techniques help the analyst to “make a transition” from one to the other stage of the analytic spectrum and facilitate analysis at those stages. In other words, after the stages of reactive analysis (descriptive and explanatory analysis, describing what has happened or is happening), the analyst is able to properly16 execute the proactive phase of the analytic spectrum answering the questions: What does it mean? (evaluative stage) and What could happen? (estimative stage)17.

Evaluative analysis uses logic, knowledge and analytical techniques to interpret and evaluate the data, examine the analytical problems presented by the recipient of the analytical product, and its products include Basic Intelligence, Current Intelligence and Target Intelligence products18. Estimative analysis is looking ahead into the future and, using different methods of analysis, tries to predict what will happen and what are the most probable future scenarios19.

3. Analytic Methods

Scientific methods have often been used for information and intelligence analysis in order to improve its processes and effectiveness. C.A. Mangio states “the belief that using the scientific method is the only way of knowing that consistently produces reliable knowledge motivates its application to analysis”20. The social and physical sciences methods are considered best suited for intelligence analysis21. Instead of using the scientific methods modified to suit the needs of intelligence analysts, Sherman Kent advocated a method specifically developed for intelligence22. The structured analysis is exactly such a method.

R.J. Heuer and R.H. Pherson organize analytical methods used in the field of intelligence analysis – scientific as well as developed specifically for the purpose of

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16 ‘Properly’ means in accordance with the principles and requirements of the chosen techniques, and avoiding cognitive biases and fallacies. This does not mean the accuracy of predictions and assessments of the situation – this cannot be guaranteed by any known analytic technique.
18 Ibidem, p. 50.
19 Ibidem, p. 52.
22 Ibidem.
intelligence analysis, into four categories, and point out that the methods in these categories are different from each other, however, the boundaries between them are often blurred and hardly recognizable\textsuperscript{23} (see Figure 3).

**Figure 3. Categories of methods used for intelligence analysis**

![Diagram](image)


Expert judgement, also called “traditional analysis”, is the first category of analytical methods used in intelligence analysis. It is a collection of traditional analytic methods, which, among others, include methods such as evidentiary reasoning, case study and critical thinking. This category combines expert knowledge with critical thinking. The primary distinguishing feature of the expert judgement and structured analysis categories is that expert judgement relies mostly on the individual effort of the analyst, which remains in the head of the analyst until it is written in the form of a preliminary report. Education and training in the field of these methods is based on general education, and in particular in social sciences, combined with knowledge of the specifics like culture and language, of the analysed country or area\textsuperscript{24}.

The second category consists of selected techniques, and is collectively referred to as structured analysis. Each technique belonging to this group is a gradual process, and its task is to present a thought process occurring in the head of the analyst in an understandable way for others, thus, allowing for understanding, debate, and criticism\textsuperscript{25}. As a result, analysis becomes a team project, in which the transparency of the process analysis reveals other analysts its inconsistency or conflicting hypotheses. Structured


\textsuperscript{24} Ibidem, p. 21

analysis allows minimizing the negative effects of a traditional analysis process and overcoming cognitive limitations. Analysts not trained in statistics, higher mathematics or science may use the techniques of structured analysis. Training analysts to use these techniques can be conducted in the work environment – career development courses, etc. Recently, even some civilian universities have offered educational programmes on international security and analysis of information focusing on those techniques\textsuperscript{26}.

Quantitative methods using expert-generated data are the third category. Analysts often do not have any, or a sufficient amount of, empirical data needed for an analysis. In the absence of this data a number of methods, especially those subjectively assessing the probability, are based on quantitative data generated by experts and their opinions. This category includes Bayesian inference, dynamic modelling and simulations. An analyst training in the use of these methods is based mainly on the education acquired at universities in the fields of mathematics, operations research, economics and marketing\textsuperscript{27}.

The fourth and final category, quantitative methods using empirical data, includes econometric modelling as the main representative of this category. Empirical data is collected using a variety of technical means and sensors. Preparing analysts to use these methods is based on training in statistics, economics and science\textsuperscript{28}.

None of these categories is to be considered better or worse. Each of them, depending on the circumstances, may be helpful. Using several methods from different categories when solving an analytical problem should be an accepted norm.

4. Genesis, Essence and Concept of Structured Analysis and Analytic Techniques

At the beginning of this century the analytical intelligence community in the United States, forced by spectacular intelligence failures (two attacks on the World Trade Centre, for example) to explore new methods of analysis and training analysts, turned their attention to structured analytic techniques. Structured analysis and the techniques were recognized as a means to overcome the limitations of reasoning and cognitive biases that constitute “the Achilles’ heel” of each analyst.

The term Structured Analysis Techniques was first used in the US intelligence circles in 2005. The origins of the concept to structure the process of information

\textsuperscript{26} R.J. Heuer, R.H. Pherson, \textit{Structured ...}, op.cit., p. 22
\textsuperscript{27} R.J. Heuer, \textit{Taxonomy ...}, op.cit., p. 3.
\textsuperscript{28} Ibidem.
analysis dates back to the 80s, when lecturer and intelligence analyst Jack Davis began to teach and write about the so-called “alternative analysis”, which he defined as processing, analysis and evaluation of alternative hypotheses, and advocated basing analyses on the cultural aspects of the analysed state or community and, finally, conducting analysis and forecasting from the perspective of the analysed state, communities and policy makers²⁹.

In 2004, a group of academics from the Sherman Kent School³⁰, analysts’ school of the Central Intelligence Agency, faced the task of updating the training programme so that they would reflect the new requirements set for the intelligence community and to better prepare their analysts³¹. During their work, Randy Pherson and Roger Z. George came to the conclusion that the term “alternative analysis” was inappropriate, because a variety of analytical techniques were grouped under this name, and also because of the erroneous belief among intelligence analysts that alternative analysis techniques were just an occasional diversity to be used for less important analytical problems. The wife of Randy Pherson coined the name Structured Analysis Techniques. In June 2005, the name was officially approved for use in the new programme and training materials of the Central Intelligence Agency³².

Structured analytic techniques help to rigorously conduct analysis and the thought processes associated with it. Those techniques ensure that the main assumptions, cognitive biases and fallacies are not automatically accepted, but are critically examined and their impact on the result of the analysis is assessed.

The essence of the structured analysis method and structured analytical techniques is to organise massive amounts of data and information analysts have to tackle in the course of solving analytical problems, by breaking down these problems into components and then applying appropriate processes such as techniques to analyse the components of a given problem³³.

Structured analysis is a process during which the internal thought processes occurring in an analyst’s mind, while working on analytical problems, are expressed in the form of a structured, transparent and reproducible model. The resulting model allows analysts to share the results of an analysis as well as methods and details of the process itself. Furthermore, it allows other analysts to complement it and share the critique on both the results of analysis and the analytic process³⁴.

³² Ibidem, p. 10.
³³ Ibidem, p. 4.
³⁴ Ibidem.
Correspondingly, structured analytic techniques constitute a unique set of tools which are used to assist analysts in mitigating, and offsetting the negative effects of their own mistakes and cognitive biases may be impairing the results of their analysis. The most important feature of structured analytical techniques is the ability to decompose the thought process of an analyst or team of analysts in a manner allowing its verification, documentation and criticism. Structured analytical techniques necessitate dialogue and communication between analysts enabling the use of the experience and knowledge of other analysts. In addition, the structured analysis process conducted in groups helps to avoid the “groupthink” that is characteristic of so-called “small groups”.

5. Structured Analytic Techniques and the Intelligence Cycle

The Intelligence Cycle consists of a systematic sequence of activities, by which intelligence corresponding to the needs of customers is gathered (see Figure 4). NATO’s doctrine AJP-2 defines the Intelligence Cycle as “the sequence of activities whereby information is obtained, assembled, converted into intelligence and made available for users”. The Intelligence Cycle is designed to provide answers to the current questions and analytical problems mainly at the tactical level and is based on the customer-service provider relationship. The client asks for information on a specific topic and the service provider plans, collects, analyses and delivers them to the customer. In recent years, the term ‘intelligence process’ has gained more popularity over the term the ‘Intelligence Cycle’, because it was recognized that it is not really a cycle but rather a process.

AJP-2 defines analysis as a “third step in the processing phase where information is subjected to review in order to identify significant facts for subsequent interpretation.”

The essence of the processing phase of the Intelligence Cycle is the transformation of the collected information into intelligence that meets the needs of customers. The remaining steps in the processing phase are:

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36 AJP-2, Allied …, op.cit., p. 4–1.
39 AJP-2, Allied …, op.cit., p. 4–6.
Collation – this stage of the processing phase relies on organizing, systematizing and connecting information to facilitate further processing\textsuperscript{40}.

Evaluation is the step in which both the information itself and its source are evaluated in terms of reliability and quality\textsuperscript{41}.

Interpretation is the closing step in the processing phase and its goal is to clarify the importance of processed data in the light of the problem in question\textsuperscript{42} (see Figure 5).

\textbf{Figure 4. NATO’s Intelligence Cycle}

\begin{center}
\includegraphics[width=0.5\textwidth]{nato_intelligence_cycle.png}
\end{center}

Source: \textit{AJP-2, Allied Joint Doctrine for Intelligence, Counter-Intelligence and Security, Edition A version 1, 2014, p. 4–1.}

\textbf{Figure 5. Processing phase of the Intelligence Cycle}

\begin{center}
\includegraphics[width=0.5\textwidth]{intelligence_cycle_processing.png}
\end{center}

Source: \textit{AJP-2, Allied Joint Doctrine for Intelligence, Counter-Intelligence and Security, Edition A version 1, 2014, p. 4–4.}

\textsuperscript{40} Ibidem, p. 4–4.
\textsuperscript{41} Ibidem. p. 4–5.
\textsuperscript{42} Ibidem, p. 4–6.
Inspecting the definition of analysis and the processing phase provided by the authors of AJP –2 one can easily notice those two concepts are narrowed down in comparison to the analytic process defined by R.J. Heuer. Such a narrow understanding of analysis often confuses analysts when they are introduced to structured analysis and Heuer’s analytic process. The intelligence analysis process restricted only to the processing phase excludes from its scope activities that are indigenous to that process. The analytic process is present in all the phases of the intelligence process and should be treated as a process within a process conducted simultaneously.

Comparing the steps of the processing phase to the essence of structured analysis and categories of structured analytic techniques, it should be noted that the structured techniques do not support analysis within the Intelligence Cycle in doctrinal terms, but rather support the entire information processing phase (see Figure 6).

**Figure 6. Processing phase steps and structured techniques categories**

![Diagram showing processing phase steps and structured techniques categories](source: the author’s own study.)

Structured analytic techniques often support other phases of the Intelligence Cycle, such as: orientation, in the case of scenario evaluation techniques (Backcasting) and hypothesis testing (Analysis of Competing Hypotheses), or when we use them to develop indicators or identify intelligence gaps and information requirements. Structured Analysis and its techniques also support processes and activities outside the Intelligence Cycle, such as decision-making process.
6. Structured Analytic Techniques Taxonomy

Structured analytical techniques help to reduce the negative impact of cognitive biases, thought patterns and erroneous assumptions on the process of analysis. These techniques can support decision-making, and facilitate the exchange of information and cooperation between analysts and groups of analysts. The use of structured analytical techniques is intended to improve the process of analysis and increase its efficiency and effectiveness. Reviewing the literature on the topic, one can encounter different variants of the taxonomies of structured analytic techniques. Albeit hardly exhaustive, a review of the most popular taxonomies of structured techniques is presented as follows.

R.J. Heuer and R.H. Pherson systemize structured analytic techniques using the criterion of how the various techniques help overcome fallacies and cognitive biases in order to reach a solution to the analytical problem\(^{43}\). They classify those techniques into the following eight categories: decomposition and visualization techniques, idea generation techniques, scenarios and indicators techniques, hypothesis generation and testing techniques, challenge analysis techniques, conflict management and decision support (see Figure 7).

**Figure 7. R.J. Heuer’s and R.H. Pherson’s taxonomy**


A different taxonomy of structured analytic techniques is presented in the Central Intelligence Agency primer for analysts: *A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis*. In this publication, structured techniques are grouped according to the results achieved when a specific technique is used, and divided into diagnostic techniques, contrarian techniques and imaginative thinking techniques (see Figure 8).

**Figure 8. Kent School taxonomy of structured analytic techniques**

![Diagram of Kent School taxonomy of structured analytic techniques]


Another taxonomy of structured analytic techniques the author has encountered classifies them into: focus techniques, contrarian techniques, quantitative techniques, and visual techniques (see Figure 9).

Considering the analytic spectrum another taxonomy of structured analytic techniques can be divided into techniques that describe, techniques that explain, techniques that evaluate and techniques that estimate (see Fig. 10).

Monitoring, description and assessment of the environment in relation to which an analysis is or will be conducted, and an assessment of effects that the existing factors in this environment have, or may have, on an analytical problem, are a starting point, and a basis for solving that analytical problem. Without a thorough environmental assessment it is not possible to conduct an effective analysis. Moreover, the quality

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44 See Figure 2, Analytic spectrum.
and accuracy of conclusions and hypotheses depend on the credibility of sources and the quality and usefulness of the information provided by them, as well as the subjective evaluation of sources and information by an analyst. Therefore, it is important that the analyst conducts his/her own assessment of sources and information, independent of the assessment provided by sensors and pre-processing operators. This independent analysis should help the analyst avoid cognitive biases, prejudices and hasty generalizations about the sources and information. The author advocates that the taxonomies of structured analytical techniques should be complemented by environment scanning and assessment techniques together with source and information evaluation techniques as separate categories. Those techniques are essential for completing the descriptive and explanatory stages of the analytic spectrum.

Figure 9. Focus, contrarian, quantitative and visual techniques

![Diagram of techniques]

Source: the author’s own study.

Considering the above observations, the author proposes the following taxonomy of structured analytic techniques\(^{45}\) (see Figure 11). The presented classification and selection of techniques resulted from the author’s attempts to improve the teaching and learning process of the analysts who were novice to structured analytic

\(^{45}\) The following taxonomy and selection of techniques for each category is based on the review of the literature augmented by the author’s professional experience.
techniques and, from the author’s experience, aids novice analysts in understanding the purpose of used techniques and selecting the best-suited technique for a given analytic problem. Experienced analysts would, undoubtedly, modify or even develop their own classifications and selection of preferred techniques.

**Figure 10. Structured analytic techniques taxonomy according to K. Hibbs Pherson and R.H. Pherson**

<table>
<thead>
<tr>
<th>Describing techniques</th>
<th>Explaining techniques</th>
<th>Evaluating techniques</th>
<th>Estimative techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summarizing</td>
<td></td>
<td>Cross-impact matrix</td>
<td>Scenarios analysis</td>
</tr>
<tr>
<td>Chronologies &amp; timelines</td>
<td>Hypothesis generation</td>
<td>Key assumptions check</td>
<td>Quadrant crunching</td>
</tr>
<tr>
<td>Matrices</td>
<td>Analysis of competing hypotheses</td>
<td>Indicators</td>
<td>What if?</td>
</tr>
<tr>
<td>Sorting</td>
<td>Structured analogies</td>
<td>Indicators validator</td>
<td>High impact/low probability</td>
</tr>
<tr>
<td>Starbursting</td>
<td>Delphi method</td>
<td>Premortem analysis</td>
<td>Red hat analysis</td>
</tr>
<tr>
<td>Generalizing</td>
<td>Argument mapping</td>
<td>Structured self-critique</td>
<td>Prediction markets</td>
</tr>
<tr>
<td>Resorting, scoring and prioritizing</td>
<td>Delphi method</td>
<td>Premortem analysis</td>
<td>Structured self-critique</td>
</tr>
<tr>
<td>Mind maps</td>
<td>Delphi method</td>
<td>Structured self-critique</td>
<td>Deception detection</td>
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<td>Link charts</td>
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</table>


Environment scanning and assessment techniques are used to describe the environment, assess and analyse it in relation to which the analyses are or will be conducted, and to assess the effects that this environment may have on a particular analytical problem. These techniques include the following: PMESII (Political, Military, Economic, Social, Infrastructure and Information), STEMPLES (Social, Technological, Environmental, Military, Political, Legal, Economic, Security), and SWOT (Strengths, Weaknesses, Opportunities, Threats). These techniques can also be used in the Intelligence Preparation of the Battlefield process to define the battlefield and describe the battlefield’s effects.
Source and information evaluation techniques are used to evaluate and supplement the knowledge of the intelligence information and its sources. Using those techniques, an analyst can avoid cognitive biases, prejudices and hasty generalizations about information and its sources. This category includes techniques: source check, quality-of-information and relevance check.

**Figure 11. Structured analytic techniques categories**

Source: the author's own study.

Decomposition and visualization techniques facilitate overcoming the limitations of the human mind in terms of the amount of information possible to be processed. The restricted number of bits of information that the human brain can process at a given time makes it virtually impossible not to omit particular facts and information in the analysis process. Decomposition techniques include: customer checklist, AIMS (Audience, Issue, Message, and Storyline), and issue redefinition. On the other hand, visualization techniques are comprised of: Sorting, Weighted Ranking, Filtering, Chronologies and Timelines, Network Analysis, Event and Scenario Trees, and Venn Analysis.

Creative thinking techniques are used to develop alternative outcomes, perspectives and points of view⁴⁶. These techniques can be categorized by:

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1. Idea generation techniques, which consist of: Structured Brainstorming, Nominal Group Technique, Starbursting, Quadrant Crunching, and Convergent and Divergent Thinking.

2. Scenarios generation techniques, which include: Alternative Futures, Simple Scenarios, Multiple Scenarios Generation, Cone of Plausibility, and Simplified Red Team.

3. Hypothesis generation techniques, which include: Simple Hypotheses, Multiple Hypotheses Generation, and Quadrant Hypothesis Generation.

4. Indicators is the last creative thinking category, and consists of Indicators Technique. Diagnostic techniques are used to verify the hypotheses, scenarios and assumptions developed using creative thinking techniques. They are also used to identify, formulate and define analytical arguments, assumptions and information gaps. Diagnostic techniques are grouped into three categories:

   1. Indicators validation consists of a single technique – Indicators Validator.
   2. Hypothesis testing includes the techniques of: Diagnostic Reasoning, Analysis of Competing Hypotheses, Key Assumptions Check, Argument Mapping, and Hypotheses Mapping.

The essence of contrarian techniques is to question the current line of thinking, and previous hypotheses in order to generate alternative viewpoints, hypotheses and scenarios. Contrarian techniques include: Structured Self-Critique, Premortem Analysis, What If?, High Impact/ Low Probability and the Devil’s Advocacy.

Decision support techniques are used to support and facilitate planning and decision-making processes. This category includes the following techniques: Pros-Cons-Fixes, Decision Matrix, Force Fields Analysis, SWOT and Decision Trees.

7. Conclusion

Analysis is certainly one of the most difficult and yet critical function in any organization. An analyst follows processes, events, people, etc., and based on this formulates hypotheses explaining the observed phenomena. Then, using those hypotheses (s)he is trying to predict future events. In order to perform those functions, an

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48 Ibidem.
effective analysis requires experience, reliable information, intuition and models, techniques and methodologies.

In analysts’ environment, one can meet with arguments that structured techniques are not useful or effective, especially when compared with automated systems of data and information analysis, or totally unsuitable for the analysis of “Big Data”. It should be noted, however, that regardless of the available systems and technical tools, and regardless of the type of analysed information or data, analytic techniques, and especially structured analytic techniques, should constitute basic skills acquired during analyst initial training.

As mentioned previously, a lot of effort is spent gathering information, while underestimating and ignoring the analysis itself. It can be seen clearly when comparing available commercial tools and services for information collection with the offered services and tools for the analysis and processing of information. B.E. Bensoussan and C.S. Fleisher list the following reasons why analytic techniques are underestimated and even avoided by decision makers:

1. “Analysis is difficult for most people.
2. Hardly anybody analyses their analysis.
3. Few people have publicly recognized or established analysis expertise.
4. Few frameworks exist for understanding how the analysis component can be managed as an integral part of the larger decision making process.”

In the author’s opinion, structured analytic techniques, being already in use in defence, law enforcement and intelligence communities, aid in overcoming the aforementioned problems, help analysts improve analyses of competition, market and environment, and facilitate strategy development and decision-making. The use of structured techniques improves the analysis process and makes it easier to control. In addition, these techniques help to reduce the impact of heuristics and cognitive biases on the outcome of analysis, while keeping in mind that no technique can replace the experience and knowledge of an analyst.

Taxonomy and selection techniques presented in this article are a proposal based on the author’s experience, and the review of the subject’s literature. The goal of the presented taxonomy is to facilitate an analyst’s training and the selection of the proper technique to solve a given analytical problem.

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49 B.E. Bensoussan, C.S. Fleisher, Analysis..., op.cit., p.15.
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1. AJP-2, Allied Joint Doctrine for Intelligence, Counter-Intelligence and Security, Edition A version 1, 2014.


