

Eurasian Studies in Business and Economics 8/1
Series Editors: Mehmet Huseyin Bilgin · Hakan Danis

Mehmet Huseyin Bilgin
Hakan Danis
Ender Demir
Ugur Can *Editors*

Eurasian Business Perspectives

Proceedings of the 20th Eurasia
Business and Economics Society
Conference - Vol. 1



 Springer

Eurasian Studies in Business and Economics 8/1

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Editors

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and Economics Society Conference - Vol. 1

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ISSN 2364-5067 ISSN 2364-5075 (electronic)
Eurasian Studies in Business and Economics
ISBN 978-3-319-67912-9 ISBN 978-3-319-67913-6 (eBook)
<https://doi.org/10.1007/978-3-319-67913-6>

Library of Congress Control Number: 2017956268

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Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer International Publishing AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Preface

This is the eighth issue of the Springer's series *Eurasian Studies in Business and Economics*, which is the official book series of the Eurasia Business and Economics Society (EBES, <http://www.ebesweb.org>). The issue is divided into two volumes, and this volume includes selected papers in the field of business that were presented at the 20th EBES Conference. The conference was held on September 28–30, 2016, at the IFM—Real Estate and Facility Management at TU Wien in Vienna, Austria, with the support of Istanbul Economic Research Association. Prof. John Rust from Georgetown University, USA, and Prof. Alexander Redlein from Vienna University of Technology, Austria, joined the conference as keynote speakers. All accepted papers for this volume went through a peer-review process and benefited from the comments made during the conference as well.

During the conference, participants had many productive discussions and exchanges that contributed to the success of the conference where 261 papers by 420 colleagues from 60 countries were presented. In addition to publication opportunities in EBES journals (*Eurasian Business Review* and *Eurasian Economic Review*, which are also published by Springer), conference participants were given opportunity to submit their full papers for this volume.

Theoretical and empirical papers in the series cover diverse areas of business, economics, and finance from many different countries, providing a valuable opportunity to researchers, professionals, and students to catch up with the most recent studies in a diverse set of fields across many countries and regions.

The aim of the EBES conferences is to bring together scientists from business, finance, and economics fields, attract original research papers, and provide them publication opportunities. This volume covers a wide variety of topics in the field of business and provides empirical results from many different countries and regions that are less investigated in the existing literature. The main business fields represented in this volume are:

- (i) ACCOUNTING AND FINANCE
- (ii) MANAGEMENT AND MARKETING
- (iii) HUMAN RESOURCES AND EDUCATION
- (iv) RISK MANAGEMENT

Although the papers in this issue may provide empirical results for a specific country or regions, we believe that the readers would have an opportunity to catch up with the most recent studies in a diverse set of fields across many countries and regions and empirical support for the existing literature. In addition, the findings from these papers could be valid for similar economies or regions.

On behalf of the Series Editors, Volume Editors, and EBES officers, I would like to thank all presenters, participants, board members, and the keynote speaker, and we are looking forward to seeing you at the upcoming EBES conferences.

Istanbul, Turkey

Ender Demir

Eurasia Business and Economics Society (EBES)

EBES is a scholarly association for scholars involved in the practice and study of economics, finance, and business worldwide. EBES was founded in 2008 with the purpose of not only promoting academic research in the field of business and economics but also encouraging the intellectual development of scholars. In spite of the term “Eurasia,” the scope should be understood in its broadest terms as having a global emphasis.

EBES aims to bring worldwide researchers and professionals together through organizing conferences and publishing academic journals and increase economics, finance, and business knowledge through academic discussions. To reach its goal, EBES benefits from its executive and advisory boards which consist of well-known academicians from all around the world. Every year, with the inclusion of new members, our executive and advisory boards became more diverse and influential. I would like to thank them for their support.

EBES conferences and journals are open to all economics, finance, and business scholars and professionals around the world. Any scholar or professional interested in economics, finance, and business is welcome to attend EBES conferences. Since 2012, EBES has been organizing three conferences every year. Since our first conference, around 9132 colleagues from 92 different countries have joined our conferences and 5240 academic papers have been presented. Also, in a very short period of time, *EBES has reached 1713 members from 84 countries.*

Since 2011, EBES has been publishing two academic journals. One of those journals, *Eurasian Business Review—EABR*, is in the fields of industry and business, and the other one, *Eurasian Economic Review—EAER*, is in the fields of economics and finance. Both journals are published thrice a year, and we are committed to having both journals included in SSCI as soon as possible. Both journals have been published by *Springer* since 2014 and are currently indexed in *Scopus*, the *Emerging Sources Citation Index* (Thomson Reuters), *EconLit*, *Google Scholar*, *EBSCO*, *ProQuest*, *ABI/INFORM*, *Business Source*, *International Bibliography of the Social Sciences (IBSS)*, *OCLC*, *Research Papers in Economics (RePEc)*, *Summon by ProQuest*, and *TOC Premier*.

Furthermore, since 2014 Springer has started to publish a new conference proceedings series (*Eurasian Studies in Business and Economics*) which includes selected papers from the EBES conferences. Also, the 10th, 11th, 12th, 13th, 14th, 15th, and 17th EBES Conference Proceedings have already been accepted for inclusion in the Thomson Reuters' *Conference Proceedings Citation Index*. The 16th, 18th, and subsequent conference proceedings are in progress.

On behalf of the EBES officers, I sincerely thank you for your participation and look forward to seeing you at our future conferences. In order to improve our future conferences, we welcome your comments and suggestions. Our success is only possible with your valuable feedback and support.

With my very best wishes,

Jonathan Batten, PhD
President

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Part I
Accounting and Finance

Auditing Quality: Some Empirical Studies

Maurizio Rija

Abstract Much has been written on audit quality, but there are still many differences in the literature. After two decades of research on audit quality, there is no universally accepted definition by researchers, who are still far from the establishment of a single framework of indicators which determine, unequivocally, whether the activity of statutory auditor has taken place according to the guidelines set forth in the applicable standards. Various definitions have been developed that are based on different approaches. Importantly, it is a topic in continuous evolution and the debate in the literature is now very open. It seems clear that the concept of audit quality has become, over the years, more and more important as a growing need was felt to ensure the truth and accuracy of the data contained in financial statements, ensuring the quality of financial information by transmitting confidence in this way to the markets and stakeholders who, in making decisions, legitimately rely on accounting records. In this paper, the definitions of quality that the literature has developed over the years will be presented and issues will be addressed related to the measurement of quality through proxies that researchers have used. Finally, the possible future studies to make further contributions to research will be briefly analyzed.

Keywords Auditing • Control • Quality • ISA • Corporate governance

1 Introduction

In this section, the definitions of direct and indirect of the auditing process quality will be outlined. The quality of the auditing process plays an essential role in the maintenance of an efficient market environment. It is a not a new concept in the field of auditing. Researchers of the subject and the bodies that govern the discipline classify the definitions into two categories: (1) direct definitions, which include those definitions of quality that do not use any proxy as a support and (2) indirect

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definitions, which proxies are used (a quality auditor, reputation, etc.) to define the quality, and the auditing implicitly.

In the first part of the paragraph, direct definitions will be analyzed which have been established in recent years in the literature. In research papers, audit quality is defined as the joint probability, assessed by the market, that an auditor identifies the presence of material misstatements in the financial statements of its clients and signs them in his report (De Angelo 1981). In this case, audit quality is a function of two key parameters, namely the auditor's ability to detect material misstatements (technical skills), and error reporting (the auditor's independence from the market evaluated). The just-mentioned parameters are the fundamentals followed by the current principles of international auditing standards that are characterized by an approach based on the identification and risk assessment that the financial statements are free of material misstatements and the identification and performing of further audit procedures designed to address these risks (Soprani 2015). It is therefore an approach to risk-based audit as opposed to the previous approach taken by the old Italian auditing standards, which were instead focused on the auditing procedures to be applied on individual balance sheet items.

Another key aspect of the auditing (De Angelo 1981), implemented by the ISAs, is the concept of significance (or materiality in technical language). Significance, which is a key aspect of the auditing process, means that, for users of financial statements, certain aspects, whether considered individually or together, are important factors in deciding whether and how to relate to the enterprise who drafted them. It might mean, for example, to decide whether to have economic relations with it, or judge whether to invest in the same, or even to consider whether to finance its activities. It is clear, therefore, that the auditor should have information on current or potential users of financial statements and use his professional judgment to determine what phenomena (qualitatively) can influence their decisions and, also, what is the error value threshold that would lead them to change their attitude towards the company (Soprani 2015).

Often the size of the auditor affects the quality of work and is a direct function of the number of clients (De Angelo 1981). That view is a break with the previous literature because the size factor was considered irrelevant for the purposes of determining the quality of service offered. In fact, some authors (Arnett and Danos 1979), using the hypothesis that audit quality is relatively homogenous, state that size may not be a determining factor for establishing the quality of the undertaking.

De Angelo (1981) show that the auditors with a large number of clients are at greater risk if they do not report significant errors identified in the financial statements. The auditor may use opportunistic behavior, thus lowering the level of quality. This happens because clients, through a credible threat of termination of the contract, can obtain benefits from auditors that reduce the level of quality in order not to lose the advantage of the fee they earn from the specific client.

Rational stakeholders perceive the lack of independence of the auditor and consequently evaluate shares of a company entrusting the task to that auditor at a very low price. The negative consequences of this vicious circle impact on the value

of companies, causing a fall in their value. For companies it is no longer convenient to keep on with that auditor assessed by the market as having a low level of independence and therefore the choice will fall on another subject that stakeholders consider independent of the client. The incentive of the auditor to implement opportunistic behavior will decrease with the increase of its size and it will be inversely proportionate to the higher number of clients. Not to lose the “quasi-fees” deriving from each client, the person making the statutory audit will increase the level of quality in the performance of his duties. It is clear that in the light of the study analyzed, the auditor’s independence plays a major role in the audit quality.

Tepalagul and Lin (2015) identifies four potential threats that can compromise the degree of the auditor’s independence causing a significant reduction in the level of quality. To facilitate understanding of the above, in Fig. 1 the threats to independence and their effects on audit quality are referenced.

As shown in Fig. 1, the threats found in the literature refer to the importance of the client and ancillary services to the auditing, the mandate of the auditor and the affiliation of the client with the external auditors. If the client is very important, from an economic point of view, for the auditor, the latter may be in a situation of economic dependence. The auditor has a strong incentive to keep that client in order not to lose a future source of profits, thus compromising his independence by acting in favor of the client.

Often auditors provide their clients services different from the auditing activity. This leads to higher incomes for the auditor, and therefore a risk of economic dependence on the client. Moreover, providing ancillary services to the main activity might create a conflict of interest and jeopardize the auditor’s work and his judgment on the client’s budget.

Several studies have shown that long-term auditing jeopardizes the independence of the activity because of the close relationship that could exist between the auditor and client. Another approach, prevalent in the literature, considers long-term auditing not as a threat, but rather as a tool to increase understanding of the company being audited, thereby increasing the level of quality (Tepalagul and Lin 2015).

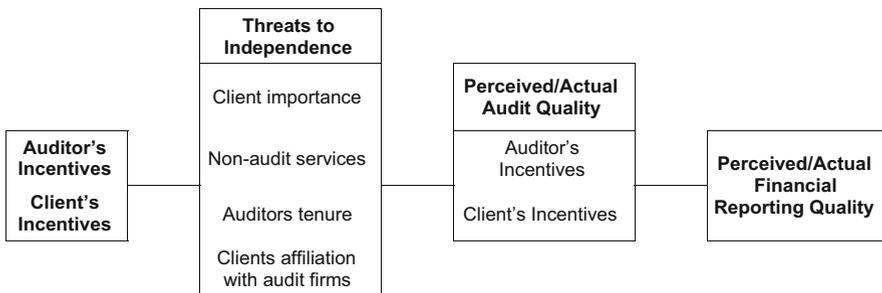


Fig. 1 Threats to the independence and effects on audit quality. Source: Adapted from Tepalagul and Lin (2015)

The affiliation of the client with the auditing firm refers to the situation where some of the staff of the client company is used to working with the auditor. The affiliation is considered a threat as it can undermine the independence since it can cause a dangerous circumvention of audit methodologies. In line with the De Angelo (1981); Palmrose (1988) define audit quality in terms of reliability; since the purpose of the auditing is to provide assurance on the data in the financial statements, the quality of the assignment is defined as “the probability that the financial statements do not contain significant errors.”

The following definition uses the results of the verification and audit quality is observed, by extension, through the reliability of financial statements. According to the approach followed, to a high level of budget guarantee corresponds a high quality of audit services. An important implication of this study is that material misstatements in the financial statements of companies become less likely with an increase in the level of quality. Therefore, even according to this thesis, the auditor will have an incentive to increase the quality of his work to avoid losing the job and suffering the costs and legal consequences arising from the discovery that the budget certified by him contains significant errors. Another way to define the quality of the auditing focuses on the accuracy of the information related by the auditor.

Titman and Trueman (1986) suggest that high-quality audits could improve the reliability of the information contained in the financial statements and allow investors to draw up a more accurate estimate of the value of the company.

Another set of definitions focuses on the degree of audit compliance with applicable auditing standards. The Government Accountability Office (GAO) is an investigative section of the United States Congress, devoted to the activity of auditing and evaluation. It is part of the legislative branch of the federal government of the United States of America. The GAO defines an audit of high quality as a check carried out in accordance with auditing standards generally accepted to provide reasonable assurance that the financial statements is presented in accordance with generally accepted accounting principles.

Finally, most of the literature has examined approximated, or even equated the quality of the auditing with the quality of the implementing of the control subjects. However, Manita and Elommal (2010) argue that the quality of the auditing should be expressed in terms of the quality of the auditing process by placing the emphasis on the examination of the different phases into which the same process is divided. Table 1 shows the main direct definitions.

In this part we will discuss the various contributions relating to indirect definitions, most of which are based on the concepts of independence and competence, following the approach developed by De Angelo (1981).

Francis and Yu (2009) state that “higher quality auditings are derived from the possibility for the auditor to issue an opinion on the going concern basis, the accuracy of the report in predicting the possible failure of the client and the extent to which client behavior highlights the rise of profits from the application of fiscal policies.” Another stream of definitions focuses solely on the auditors’ competence.

Table 1 The quality of auditing: direct definitions

Definition	Source
The quality of the auditing is defined as the joint probability, assessed by the market, that a given auditor identifies the presence of material misstatement in the financial statements of its clients and signs them in his report	De Angelo (1981)
High-quality audits could improve the reliability of the information contained in the financial statements and allow investors to draw up a more accurate estimate of the value of the company	Titman and Trueman (1986)
The quality of the auditing is defined as the probability that the financial statements do not contain material misstatements	Palmrose (1988)
Audit quality is a component of the quality of accounting information disclosed and increased information quality leads to a reduction of information asymmetries between operators	Clinch et al. (2010)
Audit quality should be expressed in terms of the auditing and not according to the auditor's quality	Manita and Elommal (2010)
Audit quality is according to the auditor's skill in detecting material misstatements (technical capacity) and the ability to report them (auditor's independence)	Chadegani (2011)
Audit quality is the likelihood of detecting errors in controlling, regulating auditors and encouraging them to constrict managerial opportunism	de las Heras et al. (2012)
The degree of certainty that the accounting principles are applied in order to faithfully represent the economic activities of the clients	Defond and Zhang (2014)

Source: Adapted from Bing et al. (2014)

In particular, it is stated that the value of the auditing stems from the ability of the entity in charge of monitoring to detect and correct material errors in the financial information presented.

Balsam et al. (2003) define the quality of the audit as the quality of the company's auditor and a factor that limits the extent to which management can manage profits. Other researchers have defined audit quality in terms of reputation and size. These two features reflect the skills and the degree of the auditor's independence.

Li et al. (2009) suggest that large-sized and/or specialized auditors are seen as subjects with greater insurance cover in case of fiscal fraud and/or other forms that show the failure of the audit procedure.

Skinner and Srinivasan (2012) focused on reputation by stating that companies highly respected for the reliability of their financial statements, are inclined to replace the auditors when the quality of the assignment is debatable, in order to avoid negative consequences on the capital market. In this sense, a company with a good reputation will be encouraged to keep qualified auditors in office in order not to lose the standard of reputation gained in the market. Ultimately, the auditors develop the reputation of their brand to deliver assurance of superior quality resulting in increased quality of audited financial statements. Audit quality can

also be deduced from the quality of the profits produced, as high quality auditing, limits the extent of profit management by administrators and improves reporting capabilities of the budgets.

Many studies have used the profits quality as a replacement definition to explain the quality of the auditing (Chen et al. 2008; Asthana and Boone 2012; Koh et al. 2013; Chan and Watson 2011). The concept of the audit quality has also affected the international organizations that deal with statutory audit. In particular, the IAASB (International Auditing and Assurance Standards Board is an independent body that deals with issuing international auditing standards, guidelines on quality control and other services to audit companies internationally) suggests that auditing is a discipline that is based on people who have specific skills, using their experience and applying principles such as integrity, objectivity and professional skepticism to make appropriate judgments based on the facts and the circumstances of the assignment. The above implies that high-quality audits should be met through the expertise and independence, ensuring a high level of quality of the audited accounts.

It is important, according to the IAASB, that all involved in various capacities in the auditing (e.g. Auditors, professional associations, legislators, etc.) work actively together to achieve the set objectives. Only through such cooperation can an adequate quality of work performed and audited accounts be ensured. It can be noted, in Table 2, that the indirect definitions examined are based theoretically on direct definitions previously analyzed.

Table 2 The quality of auditing: indirect definitions

Definition	Source
The quality of the auditor of the company is a factor that limits the extent to which management can manage profits	Balsam et al. (2003)
Higher quality auditings are derived from the ability of the auditor to issue an opinion on the going concern basis, the accuracy of the report in predicting the possible failure of the client and the extent to which client behavior highlights the increase in profits derived from ‘application of the budgetary policies	Francis and Yu (2009)
Large-sized and/or specialized auditors are seen as subjects with greater cover in case of fiscal fraud and/or other forms that demonstrate the failure of the auditing procedure	Li et al. (2009)
Auditing is a discipline that is based on people who have specific skills, using their experience and applying principles such as integrity, objectivity and professional skepticism to make appropriate judgments based on the facts and the circumstances of the assignment	IAASB (2011)
Companies highly respected for the reliability of their financial statements are likely to replace the auditors when the assignment quality control carried out is questioned, in order to avoid negative consequences on the capital market	Skinner and Srinivasan (2012)

Source: Adapted from Bing et al. (2014)

2 Research Idea, Aims, Methodology-Phases for Measuring the Quality of the Auditing and Results of the Research

As previously stated, the definitions on audit quality are not uniform among the various experts in the field; also measuring the quality of the auditing appears controversial (Chadegani 2011; Bing et al. 2014). In recent years, there have been several contributions on the subject and researchers have used different parameters.

A first line of research concerns the so-called measures that allow an immediate idea about the level of quality of the audit. They include the financial statements in accordance with accounting standards, the auditing of the quality control, the probability of failure, the document auditing, the parameters processed by international bodies.

Based on these variables, Krishnan (2003) studied the relationship between firm size and compliance with reporting obligations by non-profit organizations. They found that compliance with the accounting standards increases with increasing size of the companies. Many studies have used the risk of failure as a measurement parameter such as, for example, the study conducted by Geiger and Raghunandan (2002), which measured the quality of the auditing on the assumption that the auditor has issued a positive opinion on the assumption of going concern, in the year preceding the declaration of bankruptcy of some American companies. The analysis conducted showed that the auditors are less likely to issue an opinion on the going concern basis during the first years of work at a particular company, but not thereafter. The above is contrary to the concern expressed that a long-term relationship between auditor and client affects the quality of the service offered.

A second line of research assessed the quality of the auditing through the so-called indirect measures such as the size of the control, the tenure of office of the auditor, industry expertise, audit fees, economic dependence, the reputation, and the cost of capital. The size of the control is the indirect measurement most commonly used. De Angelo (1981) have shown in their studies how the size of an auditing firm is an important indicator of audit quality because large companies have more equipment.

Ghosh and Moon (2005) used as a study variable the tenure of the auditor which can have a negative association with the quality of the audit because the person who has held the position for a long time at the same company, may give up his independence to avoid losing the client.

The introduction of a rule requiring periodic mandatory rotation of the audit firm is a very significant issue which was discussed both in Europe and in the United States of America. This rule limits the maximum number of years that an audit firm can devote to the same client. It has been proposed in order to preserve the independence of the auditor and increase investor confidence in the financial statements published by the company.

Cameran et al. (2014) analyze the effects of mandatory rotation on audit quality in the Italian context in which this rule has been applied for over 20 years. The authors argue that audit quality tends to be lower in the first two of the 3-year

periods. In particular, using the so-called conservatism as a proxy of audit quality, they reveal that the independent auditors show greater conservatism (and therefore a higher quality of auditing) in the last three years than in the first two triennials. This happens because in the third term (the last) of the audit firm in charge may not be renewed and the risk of litigation becomes more relevant. In addition, the study documented that the perception of the quality of the auditing investors improves when the mandate comes to an end. So, the real and perceived quality of the auditing looks better in a context of mandatory rotation of audit firms. This study provides a valuable support to the stakeholders to evaluate the costs and benefits associated with the implementation of the mandatory rotation.

Wooten (2003) tried to measure the quality of the knowledge accumulated by the auditor in a given field. Through this study it was shown that the auditors with more clients in the same sector develop more experience regarding the understanding of the specific risks of that industry, with a positive effect on the quality of work done. Other variables used in support of the studies are the audit fees and the economic dependence of the auditor.

Choi et al. (2010) examined whether the association between professional fees and audit quality is asymmetric, in the sense that the relationship between the two variables is influenced by the sign of the auditing rates. The research results show that the measurement of audit quality is not affected by the association with the auditing fees regardless of the sign that these bring.

Other studies have focused on the fees received by the auditor that reflect the effort made by the latter in carrying out the assignment obtained (Kanagaretnam et al. 2009). It should be recalled that the audit market is a strongly regulated market and the opportunity to gain fees are limited. Generally, the large accountancy firms are able to charge higher fees for their service because of the power of monopoly and/or increased efforts in the activity of audit monitoring. Therefore, more effort in the auditing process corresponds to a higher level of fees to the benefit of the quality that tends to increase.

Yasina and Nelson (2012) argue that high fees indicate that auditors provide more efficient services than those who adopt the lowest rates. An alternative approach believes, however, that high auditing rates provide less incentive in reporting errors and/or fraud because it creates a relationship of economic dependence between the auditor and the client. It is important to remember that most of the research treated here is based on some fundamental assumptions, namely a) the auditor provides a unique level of quality for all clients; b) the level of quality remains constant in different periods of time; c) for different groups of independent auditors we assume a homogeneous quality level (referenced to large accounting firms, Big Four).

With reference to the quality of the audit, attention has been paid to parameters based on sources of differentiation. Three primary sources of differentiation, i.e. the institutional differences between countries, differences in the practice followed by the individual offices, differences owing to the area of specialization. At the national level, the choice of specialized auditors is higher where levels of investor protection and reporting skills in finance are higher (Francis and Wang 2008).

Ettredge et al. (2011) have investigated the choice of specialized auditors made by clients in an international context which is outside the US borders. The study focused on the specific characteristics of each client, on the factors, at the sector level and at the level of the reference country, hypothesized to improve or reduce the demand for auditors who have experience in the field. Through this research it was discovered that the selection of international clients is positively correlated with size, thus the leverage, the opportunity for growth, the amount of capital and belonging to a regulated sector.

Francis (2004) claims that more precise work can be effected analyzing specific offices of the large accountancy firms rather than the company as a whole. The reason for this view is that the individual audit assignments are carried out by an office which is typically located in the same city as the headquarters of the audit client. The perspective changes dramatically when you move the unit of analysis from the company as a whole, to the analysis of specific departments within a company.

Another group of studies that it seems appropriate to deal with here is the one based on the so-called output, (auditor's opinion), on the auditing processes (auditing environment, process performance, forecasting profits and gains arising from budgetary policies) and on inputs (the auditor's perception).

The IAASB takes up this classification defining audit quality as a triangular system based on inputs, outputs and contextual factors (IAASB 2011). The output of the audit has an important influence on audit quality because it is often considered by stakeholders in their assessments of the quality standard. For example, the auditor's report can positively affect the quality if it clearly conveys the outcome of the audit with no omissions and/or errors. It has been shown that when the mandate is extended over time, the auditor's opinion is perfected allowing a high quality to be achieved in the assignment. This means that the mandatory rotation of audit quality deteriorates due to the limited tenure of office, and not on the contrary (Carey and Simnett 2006).

Geiger and Rama (2006) examined whether the large accountancy firms (Big Four) have a higher level of quality with a low number of reporting errors, in the context of issuing an opinion on the going concern basis. The results indicate that their error rates are significantly lower than other auditing and this difference affects, of course, also the quality standards. As for the auditing process, it is important to note that it also covers issues such as the soundness of the audit methodology, the effectiveness of the control instruments used and the availability of adequate technical support. All these factors are oriented to the execution of quality control.

Manita and Elommal (2010) constructed an attention measurement scale, of the parties interested in the auditing process. The phases that result from this study are the qualitative study with the members of the auditing committee, the editors and preliminary testing of a questionnaire, data collection, research of the measuring instrument, the reliability and validity of the instrument measurement. This approach still has several limitations such as the size of the object of study sample and the difficulties of selection and measurement of the sample chosen.

Maijoor and Vanstraelen (2006) studied the environmental impact of the auditing, the quality of the auditing company and presence on the international markets, and the fiscal policies implemented by the administrators. The authors refer to two factors that can mitigate the environmental impact control which means the quality of the big auditing firms (Big Four) and the economic dependence of a company on international capital markets. They found that more rigorous testing environment reduces the amount of the profits arising from the application of budgetary policies, regardless of the type of auditor and there is no evidence on the effect of a quality control at international level. Finally, there are different inputs to ensure audit quality such as the role played by the ISAs, the personal qualities of the auditor as the skills, experience, attitudes and ethical values (Duff 2004).

Sun and Liu (2011) examined whether the risk of litigation with the client affects the differentiation of audit quality between large and not large auditing firms. The two researchers developed hypotheses based on potential monetary losses and reputation of the auditor and, after collecting data for listed US companies, conducted a regression analysis showing that the effectiveness of the large accountancy firms to constrain profits produced from fiscal policy is greater for high litigation risk clients than those with low risk, suggesting that clients with high risk can push the auditors to carry out their duties more effectively, increasing the quality.

With regard to the second line, Carcello et al. (1995) argue that the characteristics related to the auditing team are generally perceived as more important for the quality of the auditing with respect to the characteristics of the independent auditors.

Schroeder et al. (1986) focused their studies on the effect produced by fifteen factors on audit quality, by comparing the factors relating to the auditing firm and those relating to the team. The results confirmed that the factors related to the auditing team are more important than those of the independent auditors. Audit quality is not primarily based on the ISAs, but on the quality of people, their training and their ethical standards.

The Financial Reporting Council (FRC), an institution working in the UK that deals with the promotion of a high quality of corporate governance and reporting in order to encourage investment, argues that the skills, the personal qualities of the audit partners, the staff and provided to staff training are important factors that determine the quality of the auditor. Research in the field of professional ethics (Rayburn and Rayburn 1996) has shown that the type of personality is directly related to the ethical orientation of individuals.

There are several contributions in the literature investigating the behavioral perspectives of the audit quality (Coram et al. 2003; Dechow et al. 1995; Herrbach 2001; Carey and Simnett 2006; Baotham 2009; Carcello et al. 1995).

Malone and Roberts (1996) developed a more comprehensive model than those previously mentioned. They studied the relationship between the incidence of reduced quality of auditing and the personal and professional characteristics of the auditors analyzed as well as the quality control system of the audit firm. They

concluded that the solidity of the quality perceived by the auditors of their companies, the audit procedures employed and the intensity of the penalties imposed on their companies in the case of acts of reduced quality, are inversely related to the cases of behavior characterized by a reduced quality the auditing.

Baotham (2009) studied the effects of independence of the auditing, the quality and credibility and reputation on the sustainable success of CAPs (Certified Public Accountant) in Thailand. The results indicated that the independence of the auditing has a positive relationship to audit quality and credibility. In turn, the quality has a positive association with the credibility of the auditing. Quality and credibility affect significantly the reputation and sustainable success. The concentration ethics, intrinsic and extrinsic, plays an important role.

A final group of studies analyzed is that focused on the different perceptions of audit quality by shareholders, auditors, financial analysts and clients. Those mentioned are just some of those involved in the studies mentioned below.

Svanström (2013) measures the quality of the auditing through the perception of the managers who are best placed to see the improvement of audit quality because they communicate daily with the auditors and deal with the preparation of financial statements. We must pay particular attention to the perception of management because it can only represent the quality of service and not the actual audit quality. The results obtained can be biased and therefore not expressive of the real level of quality. Some studies have equated the quality of the audit to the quality of earnings. The main idea is to ensure the reliability of accounting information by maintaining high-quality earnings.

Koh et al. (2013) observe how, in the enterprise, there is a reward system for managers based on achieving certain goals in terms of profits. So, it is evident that there is an intention on the part of management to manage earnings through the adoption of fiscal policies. In addition, the earnings management is also closely linked to the regulation of discretionary accruals. In other words, managers have a tendency to change the level of competence to change the size of the profits, thus achieving any profit targets previously set (Francis and Yu 2009). From the above considerations, it emerges how the budget is the product resulting from a process of negotiation between managers and auditors (de las Heras et al. 2012). Therefore, it is argued that the quality of information on profits in the financial statements can reflect the quality of the auditing. From the point of view of profit management, discretionary accruals are preferred by the Manager tool, as it allows the amount of profits earned to be manipulated. There is a positive correlation between accruals and profits, while the quality of the auditing is related to the provisions of an inverse relationship. The greater the discretion of managers, the lower the quality of profits resulting from the balance sheet and, consequently, the level of the audit quality will be low. Some research has shown that the provisioning policy can directly reflect the status of the auditing firm effort to enforce accounting standards, countering the earnings management through discretionary maneuvering on the budget (Lawrence et al. 2011).

Moreover, Svanström (2013) suggests that, to detect weaknesses or significant errors, an auditor must always start from the analysis of the accounting data

verifying discretionary accruals to discover a possible earnings management through fiscal policies. In most research, the provisions are measured in absolute terms because that way the discretion afforded to managers (Menon and Williams 2004) can be identified more completely. In other words, the absolute value of provisions would be able to detect the increases and decreases of the business income. However, some experts prefer to express the value of provisions not in absolute terms, but considering the value of the examined sign (Carey and Simnett 2006). Audit quality can be gauged by assessing the cost of capital on the credibility of the financial information flow. It has been shown that investors perceive profits controlled by the big auditing firms (Big Four) as safer than those that were audited by small companies. For this reason, clients of the big auditing firms should benefit from a reduction in capital cost (Lawrence et al. 2011).

According to Schauer (2002) the role of an audit procedure is to reduce the risks of material errors and/or fraud. According to the author, in most of the studies indirect measures of quality are mainly used. With this in mind, the bid-ask differential model (Bid-ask spreads) was developed, considered by Schauer as a measure and more effective audit quality. The market is characterized by continuous transactions and when a transaction cannot be explained through available information, the differential between supply and demand increases in order to counter the asymmetric information. The bid-ask spread is positively correlated to the extent of asymmetric information of companies. In this case, the differential can be a measure of the information disclosed and therefore an accurate indicator of the quality of statutory audit.

Through this model, Schauer (2002) examines the differences in the audit quality resulting from the different levels of specialization in the sector auditor. In this model, the dependent variable is the bid-ask spread percentage calculated as the difference between the high and low daily offer divided by the average. The study results show that the degree of industry specialization and the auditor's experience are positively correlated to the quality of the auditing. Another proxy used in the literature is that of the disciplinary sanctions.

It is suggested that the failure of the audit procedure is more common in those auditors who provide a low quality. The above implies the existence of a negative association between audit failure and quality of service (Palmrose 1988 and Svanström 2013). If the auditor makes mistakes in the conduct of his work, a sanction could be imposed on him. The probability of being subject to disciplinary sanctions can be used to estimate the quality of the auditing. If an auditor has a high probability of being sanctioned, it means that the level of quality offered by him is low. In other words, the high risk of being punished is a poor indicator of compliance with the principles and rules of the profession. As the degree of compliance increases, the higher the quality of the service provided. Conversely, a low risk of incurring disciplinary sanctions is synonymous with a high level of audit quality. The disciplinary sanctions imposed pressure on auditors who, rather than lose their compensation and see their reputation compromised, have the incentive to increase the quality level of the services offered. In particular, the auditors with a better

reputation have every incentive to avoid mistakes and to maintain a high quality level.

Finally, some American master studies measure the quality of the auditing with reference to the cancellation of checks AICPA (American Institute of Certified Public Accountants) is an organization founded in the United States in 1887 and is the national body that regulates the profession of the CPA. It played a prominent role in regulating the professional functions with regard to auditing, certification and ruling and updating of accounting and auditing principles and the PCAOB inspections. It is demonstrated that unfavorable checks and inspections are a signal of low audit quality. In other words, an auditor with a low level of quality has a high probability of receiving an inspection report with many shortcomings identified.

According to DeFond and Lennox (2011), the PCAOB impositions involve high costs on a low level of quality auditors. In addition, crimes could be discovered during the inspections which could be reported to the authorities and which would involve major penalties and a substantial loss of reputation. This situation would lead these auditors, in extreme cases, to leave the market. But we must consider that the inspections that the two authors cite are required only once every 3 years. This important limitation means that newly established companies are subtracted from this discipline. Table 3 shows the main the main proxies to measure audit quality.

3 Conclusion

The concept of audit quality is very difficult to pin down because there can be different points of view that allow one to arrive at different definitions. Some authors have defined audit quality directly, while others have opted for an implicit definition by other parameters (e.g. independence).

After years of study and research of various kinds, not only have researchers not come to define audit quality, but they also appear uncertain about what measuring method to adopt.

Audit quality has been studied and measured through different proxies, but they are still several gaps in the literature. Given the importance of ensuring a high level of quality, research should focus on exploring the areas that affect quality such as client service satisfaction and client loyalty.

Gaps still to be filled are found in areas related to the characteristics of the auditor. For example, it would be interesting to deepen, with further study, how audit quality is influenced as a result of substitution and/or rotation of the auditor.

The research that we consider analyzed, marginally, the involvement and influence of the characteristics of the corporate governance of the companies audited. However, the study of Talamona et al. (2013) should be remembered, who analyzed the relationship between audit quality and the quality of corporate governance. This research provides an important contribution because it analyzes the data on the internal control systems anomalies on the balance sheets outside the American context. The results of this survey show that the quality of corporate governance is

Table 3 The main and proxies

Type of proxy	Variable	Source
Quality of earnings	Discretionary provisions	Balsam et al. (2003); Carey and Simnett (2006); Hoitash et al. (2007); Chen et al. (2008); Jackson et al. (2008); Chi et al. (2009); Francis and Yu (2009); Choi et al. (2010); Francis et al. (2011); Lawrence et al. (2011); Asthana and Boone (2012); de las Heras et al. (2012); Gunny and Zhang (2013); Minutti-Meza (2013); Koh et al. (2013); Svanström (2013); Lee et al. (2013)
Quality of earnings	Reaching or exceeding the targets in terms of profit	Francis (2004); Carey and Simnett (2006); Francis and Yu (2009); Asthana and Boone (2012); Koh et al. (2013); Minutti-Meza (2013)
Quality of earnings	Earnings response coefficient	Balsam et al. (2003); Chi et al. (2009); Burnett et al. (2012); Lee et al. (2013); Koh et al. (2013)
Quality of earnings	Chances of reappointment	Gunny and Zhang (2013)
Quality of earnings	Odds of making a profit or timely recognition of losses	Francis et al. (2011)
Features of the auditor	Size of the auditor	De Angelo (1981); Francis (2004); Behn et al. (2008); Clinch et al. (2010); Kanagaretnam et al. (2011); Chen et al. (2011); Memis and Cetenak (2012)
Features of the auditor	Type of auditor	Becker et al. (1998); Clarkson (2000); Watkins et al. (2004); Hakim and Omri (2010); Clinch et al. (2010); Kanagaretnam et al. (2011); Chu et al. (2013)
Auditor characteristics	Skills and abilities of the auditor	Carcello and Nagy (2004); Francis (2004); Watkins et al. (2004); Behn et al. (2008); Breesch and Branson (2009); Mansouri et al. (2009); Li et al. (2009); Clinch et al. (2010); Hakim and Omri (2010); IAASB (2011); Kanagaretnam et al. (2009)
Auditor characteristics	Company characteristics	Skinner and Srinivasan (2012)
Market perception	Capital Cost and bid-ask spread	Lawrance et al. (2011); Schauer (2002)
Independence	Rates auditing	De Angelo (1981); Watkins et al. (2004); Li et al. (2009); Kanagaretnam et al. (2011); Yasina and Nelson (2012)
Other	The mandate of the auditor	Hakim and Omri (2010)
Other	Process audit	Manita and Elommal (2010); IAASB (2011)
Other	Perception of people	Jamal and Sunder (2011); Svanström (2013)
Other	Inspections	Defond and Lennox (2011)

Source: Adapted from Bing et al. (2014)

positively associated with audit quality, although there are some limits in the work such as the size of the research sample and the risk that no serious anomalies are weighed as in the others causing a bias in the results. In other words, the research

does not distinguish the anomalies by seriousness and having a sample where the less serious ones prevail, the findings could lead to different interpretations. We have seen that a few studies have focused their attention on auditing groups and on the team.

Further studies could investigate the impact that the different personalities of the team have on audit quality. The range of research should focus on aspects such as job performance, stress, and the moral and ethical motivations of any individual. A study would be useful to understand better the reasons that lead the auditor to implement certain behaviors that affect audit quality such as the work environment and leadership within the team. Finally, more research is needed to compare the quality of the auditing of the public and private sector in order to grasp similarities and differences.

The issue relating to the quality of the auditing is still a fertile ground in which research can make a major contribution both to improve and develop the profession, both to help and direct the activities of governments and all stakeholders of the financial statements taking rational decisions in the light of the data contained therein.

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Research on the Transparency of Information Regarding the Public-Private Partnership in the Public Hospitals from Romania

Aurelia Ștefănescu and Monica Dudian

Abstract The public-private partnership within the health public system from Romania is highly developed. The adoption of the public-private partnership is the alternative to attenuate the significant deficit of financial resources assigned to the health public system, the limitation and low quality of the medical service offer, as well as the discrepancy between the medical service demand and offer. There are difficult and debatable issues on the public-private partnership within the health public system from Romania. The undertaken research has as objective the identification of the degree of information transparency in respect of the public-private partnership in the public hospitals subordinated to the Health Ministry. The research has two dimensions. The first one takes into account the identification of approaches regarding the public-private partnership at the level of the professional literature and the regulations in the field. The second dimension features a qualitative research in respect of the degree of information transparency regarding the public-private partnership in the public hospitals subordinated to the Health Ministry. The results of the study show the limitation of the information transparency concerning the public-private partnership, as well as the heterogeneousness of this information from dimensional and temporal points of view.

Keywords Public-private partnership • Transparency • Public hospitals • Romania

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1 Introduction

Hospitals are a central element of the health public system, taking into account their role in ensuring the population's health, the complexity and variety of types of medical services offered, the great consumption of resources, endowment with advanced technologies, the high number of actual and potential patients, and the vulnerability to the economic environment fluctuations.

In Romania, in accordance with the regulations in the field, the hospital is “the sanitary unit with beds, bearing public utility, legal entity, supplying medical services” (The Health Care Reform Law 2006, p. 46). The hospital typology varies in accordance with their classification criteria. In terms of subordination, hospitals are classified into two categories: hospitals subordinated to the Health Ministry and hospitals subordinated to the local public administration. Regardless of the types of public hospitals, they have severe financing problems, generated by the discrepancy between the real financing needs and the assigned public resources. Thus, there are diminished the quality, complexity and the number of medical care services offered with negative impact upon the population's health.

Our option to include the hospitals subordinated to the Health Ministry within the area of research is argued by the high level of complexity of the offered health services, the number and complexity of public-private partnerships, the significant consumption of financial resources, and a strict monitoring performed by the ministry. In this context, the current research has as objective the investigation of the degree of transparency of the information related to the public-private partnership at the level of these hospitals.

From structural point of view this article includes three sections. The first section presents the conceptual aspects regarding the public-private partnership. The second section is intended for the study of the information transparency regarding the public-private partnership into the public hospitals subordinated to the Health Ministry and this part includes two components, respectively the research methodology and the research results. The last section closes the article and displays the conclusions, limits and future directions of research.

2 Conceptual Approaches Regarding the Public-Private Partnership

The public-private partnership is a concept approached multidimensionally at the professional literature level, taking into account the trend of limiting the public financial resources and the increase of demand and the costs of the public services.

In terms of project management of public-private partnership, the researches performed within the professional literature during 1996–May 2013 underlined the fact that only 186 studies were published on this topic. Also, the research results showed the advantages of the public-private partnership: important economies for

the state, the diminution of time to complete the project, improvement of the service quality, the decrease of public investment, the resource division between the two sectors (Perriere et al. 2014).

In general terms, the public-private partnership is a legal contract concluded between an entity of the public sector and one or more private entities in order to develop projects or manage public services and assign both the responsibilities and risks among the partners (Perriere et al. 2014). Silvestre (2012) states that within the public sector the public-private partnership leads to the decrease of costs of entities, the more efficient use of deficient resources, increasing quality and the diminution of prices of the services offered to the community. In other point of view, Campagnac (2009) states that the public-private partnership offers a positive view of the negotiations between the public sector and the private sector.

Cruz and Marques (2013) consider that the public-private partnerships are long term contracts going on within uncertainty conditions and show the elements exhibiting them, respectively: high investment, costs and debts, high sensitivity to the demand variation, wide exposure to the financial markets, vulnerability in front of the political instabilities. Iossa et al. (2008) present three fundamental aspects of the public-private partnership affecting the nature of transactions and the agency costs associated: ranging the responsibilities, transfer of risks, very long period of contract completion. Also, there are presented the advantages of the public-private partnership from micro-economic and transactional view. This perspective allows the evaluation of costs and benefits of the contractual manner within the context in which the responsibility delegation is associated to a moral risk issue.

The costs within the health system tend to rise and the state budgets are in decline. The alternative to this situation is the involvement of the private sector into the financing, construction and supply of public services by using the public-private partnerships within the field of health (Acerete et al. 2011).

In terms of the funding crisis, the medical care has to be offered under a budgetary rigor. Yaya (2005) argues that the public-private partnership improves the effectiveness and efficiency of the public services and it consolidates their financial, operational and infrastructure viability. In Gaudron's view (2009), the public-private partnership is an important instrument of strategic management in command of the managers of public health entities. Analysing the public-private partnership between the Centre hospitalier universitaire d'Amiens Picardie and the clinic Victor Pauchet de Butler, the author considers that the public-private partnership is an opportunity for the two partners and a support means at regional level. Mordelet (2006) identifies the manners of involving the private sector into the public one and the bidimensional responsibilities by reporting to the health system, respectively: externalizing the services of non-clinical maintenance, the services of clinical maintenance, the professional clinical services, and the private management of the public hospital.

In terms of the public health system, studies performed within the professional literature state that the public-private partnership is a viable manner for developing and accessing the medicines and vaccines intended for fighting against disregarded diseases. An argument in this respect is given by the fact that the public health

system does not have the necessary resources or the resources are assigned for achieving other objectives. De Pinho Capos et al. (2011) consider that the development stage of the public-private partnership to develop medicines and vaccines needs a more careful planning, discussions on the common values and objectives, an agreement regarding the mutual interests and the legality of power relationships, an exchange of experience and resources etc. The stage of management of the public-private partnerships for developing medicines and vaccines involves transparency, a good communication and a participatory decisional process among the partner organizations.

Bhate-Deosthali et al. (2011) state that there is no evidence sustaining the fact that the public-private partnerships improve the access to the medical services, their quality or the fact that they have an impact on the amounts paid by the patients. In this respect, the public-private partnerships imply a transfer of state funds towards the private hospitals in order to assure the access of poor patients to medical services. From prudential view, the authors state that the involvement into the public-private partnerships should be preceded by the issuance of the regulations and collection of information on the medical service quality. These must be completed by the monitoring of the public-private partnerships.

A prudential view of the public-private partnership is also supported by Abednego and Ogunlana (2006) who developed a model of risk management focused on the following aspects: risk typology, involved parties who must accept the risk, and the best strategy to prevent or minimize consequences.

In Romania, the results of an empirical research performed at the level of the public hospital managers underlined the following: the predominant majority of managers believes that the public-private partnership is an alternative to improve the hospital performance; the hospital managers from Bucharest and Ilfov agree that the public-private partnership influences the performance of hospitals, and those from the western and south-western regions evince a slight tendency to deny this relationship; the hospital managers for patients with chronic diseases deny the possibility of improving the hospital performance by adopting the public-private partnership, whereas “other hospital” managers support this version; the public hospital managers agree that the public-private partnership improves their performance, regardless of the number of beds, number of patients, indicator of case complexity, average time of waiting for an operation, the value of expenses per ward; managers older than 45.99 consider that the public-private partnership influences positively the hospital performance whereas their younger colleagues have different opinions; the public hospital managers agree that the public-private partnership improves their performance regardless of sex, seniority within the health system or managing position (Calu et al. 2011).

Officially, in Romania the approach of the concept of public-private partnership is included in the Law of the public-private partnership 2010. In this respect, the public-private project is the project realised entirely or partly on personal financial resources or attracted by the investor on the basis of a model of public-private partnership, which will generate a product or a public service.

The regulation regarding the public-private partnership outlines the general directions for initiating and implementing public-private partnership projects for public works and with private financing within the following sections: principles, definitions, types of activities within the public-private partnership projects, scope of application and exceptions, stages of awarding a public-private partnership contract, conditions for starting and ending the public-private partnership, principles and general rules of awarding the public-private partnership contract, special rules both for setting up the project company and organizing the activity of the project coordination.

3 Research on the Information Transparency Regarding the Public-Private Partnership into the Public Health System in Romania. The Case of the Hospitals Subordinated to the Health Ministry

This research took into account the agency theory to which the public health system is subscribed, but also the public-private partnership. In this respect, we consider that transparency diminishes the information asymmetry between the principal (the public hospital) and agent (the private partner).

In the context in which in Romania the public-private partnership was shaped as early as 1990 after the break-up of communism (December 1989), the regulation framework of the public-private partnership is limited. The study of the law of public-private partnership (Law of the public-private partnership 2010) showed the fact that the idea of transparency is limited only at the level of a principle and consists of disclosing to the public the whole information related to the application of procedures of concluding a public-private partnership contract. Also, the term of transparency is used within the mentioned law only once.

3.1 Research Methodology

We chose the qualitative type research in order to identify the degree of information transparency regarding the public-private partnership at the level of the public hospitals subordinated to the Health Ministry. This endeavor took into account the investigation of the official sites of the 72 existing entities within 21 counties (Arad, Bihor, Braşov, Buzău, Cluj, Constanţa, Covasna, Dolj, Galati, Hunedoara, Iaşi, Maramureş, Mehedinţi, Mureş, Prahova, Sibiu, Timiş, Vrancea) and the Bucharest municipality. We underline the fact that from administrative-territorial point of view Romania is structured into 41 counties to which the Bucharest municiple is added.

In order to achieve the objective of the research, we took into consideration the whole actual and historical information circumscribed to the public-private partnership area. The information regarding the public-private partnership divided by counties, hospitals and typology are displayed in Table 1.

Table 1 Transparency of the information regarding the public-private partnership into the public hospitals subordinated to the Health Ministry from Romania

County	Name of the health unit/county	Information on the public-private partnership	Hospital website
Arad	Hospital of neuromotional recovery "Dr. Corneliu Barsan" Dezna	<ul style="list-style-type: none"> • Annual procurement plan 2013-Project • Annual procurement plan 2015-Project 	http://www.spitaluldezna.ro
Bihor	Clinical hospital of medical recovery Baile felix	<ul style="list-style-type: none"> • Invitation to tender • Technical specifications • Models of forms • Model of supply contract 	http://www.spitalfelix.ro
	Lunatic and security measures Asylum Stei	<ul style="list-style-type: none"> • Procurement contracts which took place in 2012, 2011, 2010, 2009, 2008 	http://www.spitalpoianamare.ro
	Railway clinical hospital Oradea	<ul style="list-style-type: none"> • Invitation to tender for the public procurement of medical psychiatric services (invitation to tender, technical specifications) year 2013 • Direct procurement of laundry and cleaning services (invitation to tender, technical specifications) year 2013 • Tender documentation—offering services of processing and transporting food (catering), year 2015 • Tender documentation—offering cleaning services, year 2015 • Tender documentation for the procurement of services of laundry, renewal through tailoring, disinfection, ironing, drying and laundry transport, year 2015 	http://www.spitalcforadea.ro
Brasov	Neurosis sanatorium predeal	<ul style="list-style-type: none"> • Technical specifications—works for setting up a therapeutic path with sensorial sections and adjacent external area, year 2015 • Quantity take-offs—auxiliary works for gas distribution—works done at the marsh gas distribution pipes and replacement of auxiliary elements, year 2014 	http://www.nevroze-predeal.ro
	Railway general hospital Brasov	<ul style="list-style-type: none"> • Procurement statement OMTI 1121/2012 • Annual programme of public procurement for the years 2015, 2014, 2013 	http://www.spcfbv.ro

Bucharest	Institute of fonaudiology and ORLV functional surgery "Prof. Dr. Dorin Hociota", National institute of endocrinology "C. I. Parhon" National institute of neurology and neurovascular diseases National institute for complementary and alternative medicine "Prof. dr. Florin Bratila" National institute of geriatrics and gerontology "Ana Aslan" National institute of contagious diseases "Prof. dr. Matei Bals" National institute of recovery, physical medicine and balneoclimatology Oncologic institute "Prof. dr. Al. Trestioreanu" Institute of emergency for cardiovascular diseases "Prof. dr. C.C. Iliescu" Institute for mother and child care "Prof. dr. A. Rusescu" institute of pneumofiziologie "Marius Nasta"	<ul style="list-style-type: none"> Do not display information on the public-private partnership Notifications for public procurement according to typology (technical specifications, data sheet, forms), year 2016, 2014 Annual programme of public procurement for 2015, 2014, 2013 Do not display information on the public-private partnership Contracts of public procurement, year 2009 Do not display information on the public-private partnership Report, procedures, contracts, year 2011 Do not display information on the public-private partnership Medical agreements, year 2014 Centralizer on the procurement according to the typology, years 2009, 2008 Situation of the public procurement contracts, year 2009 Do not display information on the public procurement Notifications for public procurement, year 2014 	http://ifacforl.ro http://www.instparhon.ro http://www.inbn-bucuresti.ro http://www.medicinacomplementarasialternativa.ro http://www.ana-aslan.ro http://www.mateibals.ro http://www.inrmfb.ro http://www.iob.ro http://www.cardioiliescu.ro http://fio.mc.ro http://www.mariusnasta.ro
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(continued)

Table 1 (continued)

County	Name of the health unit/county	Information on the public-private partnership	Hospital website
	National institute of diabetes, nutrition and metabolic diseases "N. C. Paulescu"	<ul style="list-style-type: none"> Contracts of public procurement, year 2009 	http://www.paulescu.ro
	Clinical institute Fundeni	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://icfundeni.ro
	Emergency clinical hospital	<ul style="list-style-type: none"> Notification for partner selection within the Human Capital Operational Programme, 2014–2016 	http://www.scub.ro
	Emergency clinical hospital "Sf. Pantelimon"	<ul style="list-style-type: none"> Notifications for public procurement, years 2016, 2015, 2014 	http://urgentapantelimon.ro
	Emergency clinical hospital "Bagdasar-Arseni"	<ul style="list-style-type: none"> Tender notifications, year 2015 	http://www.bagdasar-arseni.ro
	University emergency hospital Bucharest	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.suub.ro
	Emergency clinical hospital for plastic surgery	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.arsuri.ro
	Emergency clinical hospital for children "Grigore Alexandrescu"	<ul style="list-style-type: none"> Non-operating site 	http://www.spitaluldecopii.ro
	Emergency clinical hospital for children "M.S. Curie"	<ul style="list-style-type: none"> List of partnerships of hospital 	http://www.mscurie.ro/meniu_con tent.php
	Emergency clinical hospital "Sf. Ioan"	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.sfib.roan
	Clinical hospital for ophthalmological emergencies	<ul style="list-style-type: none"> The section Contracts of public procurement is directed towards the professional site 	http://spitaloftalmologie.ro/
	National clinical centre of neuropsychomotorial recovery for children "Dr. N. Robanescu"	<ul style="list-style-type: none"> List of partner entities 	http://www.recuperarecopii.ro
	Ambulance department Bucharest-Ilfov	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.sabif.ro

Buzau	Lunatic and security measures Asylum Sapoca	<ul style="list-style-type: none"> Contracts of public procurement, year 2009 	http://hsapoca.ro
Cluj	Emergency heart institute for cardiovascular diseases "N. Stancioiu"	<ul style="list-style-type: none"> Contracts of public procurement, years 2011, 2010, 2009 	http://www.institutulinimii.ro
	Oncological institute "Prof. dr. I. Chiricuta"	<ul style="list-style-type: none"> Public procurement procedures on typology, years 2014, 2013, 2011, 2010, 2009 	http://www.iocn.ro
	Clinical institute of urology and renal transplant	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.institut-urologie.ro/spital_urologie.html
	County emergency clinical hospital Cluj-Napoca	<ul style="list-style-type: none"> Non-operating site 	http://www.scju-cluj.ro/Pages/default.aspx
	Regional institute of gastroenterology and hepatology "Prof. dr. Octavian Fodor" Cluj-Napoca	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.irgh.ro/to
Constanta	Railway clinical hospital Cluj-Napoca	<ul style="list-style-type: none"> Non-operating site 	http://www.spitaluluniversitarefcluj.ro
	Balneary and recovery Sanatorium Mangalia	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.balnear.net
	Recovery, physical medicine and balneology clinical hospital Eforie Nord	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://efosan.ro
	Balneary and recovery Sanatorium Techirghiol	<ul style="list-style-type: none"> Contracts of public procurement for the periods: June 2014, 2012, 2011, 2010, 2009 Client contracts, year 2010 Supplier contracts, year 2010 	http://www.sbtghiol.ro/
	Railway clinical hospital Constanta	<ul style="list-style-type: none"> Technical Specifications for renting medical cabinets, year 2012 Documentation for bidding ultrasonic scalpel, year 2012 Technical Specifications for exploiting the materials generated by cassation, year 2012 Leasing by public tendering of the spaces intended for other purposes than dwelling, year 2012 Documentation for awarding medical equipment, years 	http://www.spitalcfconstanta.ro

(continued)

Table 1 (continued)

County	Name of the health unit/county	Information on the public-private partnership	Hospital website
Covasna	Cardiovascular recovery hospital "Dr. Benedek Geza" Covasna	2016, 2015 <ul style="list-style-type: none"> • Documentation for electrical power offers, 2016, 2015 • Technical Specifications for catering services, years 2016, 2013 • Documentations for awarding contracts of purchasing medicines, year 2015 • Technical Specifications for medical materials, year 2015 • Technical Specifications for medical consumables, year 2013 • Technical Specifications for computers and printers, year 2012 • Technical Specifications for car service—repair and maintenance, year 2012 	http://www.cardiologie-covasna.ro
Dolj	County emergency clinical hospital Craiova Lunatic Asylum Poiana Mare Railway Clinical Hospital Craiova	<ul style="list-style-type: none"> • Do not display information on the public-private partnership • Contracts of public procurement, anii 2015, 2014, 2013 • Do not display information on the public-private partnership • Technical Specifications for food purchasing, year 2016 • Technical Specifications for the purchase of services of pick-up, transport and discharge hazardous medical waste, year 2016 • Documentation (technical specifications, invitation to tender, forms, model of contract) purchasing services of guard and protection, year 2016 • Technical Specifications for services of supplying oxygen, year 2016 	http://www.scjuc.ro/ http://www.spitalpoianamare.ro http://spitalcf.oltenia.ro/pag_pac.html

		<ul style="list-style-type: none"> • Technical Specifications for purchasing services of elevator repairs, maintenance and surveillance • Technical Specifications for purchasing services for maintenance, verification and repairs of medical equipment, year 2016 • Technical Specifications for purchasing services of cleaning, year 2016 	
Galati	Railway general hospital Galati	<ul style="list-style-type: none"> • Invitation to public open tender for leasing, year 2015 	http://www.spitalgeneralcgalati.ro
Hunedoara	Lunatic Asylum Zam	<ul style="list-style-type: none"> • Contracts with economic operators, years 2005, 2007 	http://www.spzam.ro/
	Railway general hospital Simeria	<ul style="list-style-type: none"> • Do not display information on the public-private partnership 	http://www.spitalgeneralcfsimeria.ro
Iassy	Regional oncological institute Iassy	<ul style="list-style-type: none"> • Non-operating site 	http://troiasi.ro
	Institute of cardiovascular diseases "Prof. dr. G. I. M. Georgescu"	<ul style="list-style-type: none"> • Do not display information on the public-private partnership 	http://www.cardioiasi.ro
	County emergency Clinical hospital "Sf. Spiridon"	<ul style="list-style-type: none"> • Non-operating site 	http://www.spitalspiridon.ro
	Lunatic and security measures Asylum Padureni Grajduri	<ul style="list-style-type: none"> • Do not display information on the public-private partnership 	http://www.padurenimhosp.ro/
	Lunatic clinical hospital "Socola"	<ul style="list-style-type: none"> • Do not display information on the public-private partnership 	http://www.socolaiasi.ro/
	Railway general hospital Pascani	<ul style="list-style-type: none"> • Do not display information on the public-private partnership 	http://www.spitalulgeneralcfpascani.ro
	Railway clinical hospital Iassy	<ul style="list-style-type: none"> • Centralizer of public procurement, 4th quarter 2015, 2016 	http://www.spitaluniversitarcfiasi.ro/cinesuntem.htm
Maramures	Recovery hospital Borsa	<ul style="list-style-type: none"> • Do not display information on the public-private partnership 	http://www.spitalrecovery.ro
Mehedinti	Railway general hospital Drobeta-Turmu Severin	<ul style="list-style-type: none"> • List of Independent Facilities of Goods, assigned with state budget financing, year 2016 	http://www.spitalcfdrobeta.ro/a5.html

(continued)

Table 1 (continued)

County	Name of the health unit/county	Information on the public-private partnership	Hospital website
Mures	County emergency clinical hospital Targu Mures	<ul style="list-style-type: none"> Contracts of public procurement, year 2015 	http://fbcv-public.sharepoint.com/
	Emergency institute for cardiovascular diseases and transplant Targu Mures	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.cardioms.ro
Prahova	Balneoclimaterical Sanatorium of Children Busteni	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.sanatoriulbusteni.ro/
	Railway general hospital Ploiesti	<ul style="list-style-type: none"> Statement of the in-process public procurement, year 2012 Statement of the on-going public procurement, year 2012 Statement of the completed public procurement, year 2012 Statement of the execution stage of contracts concluded following the public procurement procedures, year 2012 	http://www.spitalcfploiesti.ro
Sibiu	Railway general hospital Sibiu	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.spitalcfisibiu.ro
Timis	Institute of cardiovascular diseases Timisoara	<ul style="list-style-type: none"> Accounts of necessity, technical specifications, years 2016, 2015 	http://www.cardiologic.ro
	County emergency clinical hospital Timisoara	<ul style="list-style-type: none"> Documentation (technical specifications, complete notification, forms, model of contract, data procurement statement, contract clauses) for purchasing services of collecting and incinerating hospital waste, year 2016 	http://www.spitalul-municipal-timi-soara.ro/
	Medical centre for evaluation and recovery of children and youth "Cristian Serban" Buzias	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.ccserban.ro

	Lunatic Asylum Gataia	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.spitalgataia.ro/
	Lunatic and security measures Asylum Jebel	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.spitaljebel.ro/
	Regional institute of oncology Timisoara	<ul style="list-style-type: none"> Non-operating site 	http://itioiasi.ro
	Railway clinical hospital TIMISOARA	<ul style="list-style-type: none"> Do not display information on the public-private partnership 	http://www.spitalcfm.ro
Vrancea	County emergency hospital "Sf. Pantelimon" Focsani	<ul style="list-style-type: none"> Notifications on the public procurement, year 2015 	http://www.spitalvn.ro
	Cronical Lunatic Asylum Dumbraveni	<ul style="list-style-type: none"> Procurement plan, year 2016 Supplier list 	http://www.spdumbraveni.ro
	Hospital "N.N. Saveanu" Vidra	<ul style="list-style-type: none"> List of suppliers of domiciliary medical care, 1May–31December 2015 	http://www.spitalvidra.ro

Source: Own processing

3.2 Research Results

The research performed at the level of the 72 public hospitals subordinated to the Health Ministry underlines the low degree of information transparency in terms of public-private partnership. In this respect, 40% of the investigated hospitals do not display information on the public-private partnership in which they are involved, and for 8% of them, the official sites are not functional.

In terms of information transparency regarding the public-private partnership at level of the investigated public hospitals, the results of the research showed the following: 18% of the hospitals display the notifications on the public procurement and the appropriate documentation (including the technical specifications, invitation to tender, forms, model of contract) complying with the typology of purchased goods/services, 15% of the hospitals display information on the public procurement contracts (including the date, number of contract, procurement type, value, period of contract), 7% of them display the list of hospital partners limited to their names, 4% of them display the annual plans of public procurement, and 1% of hospitals display the situation of the public procurement evolution (including the statement of the in-process public procurement, statement of the on-going public procurement, statement of the completed public procurement, statement of the execution stage of contracts concluded following the public procurement procedures).

In respect of time criterion, this research underlines the heterogeneousness of information on the public-private partnership, both at individual and integrated levels. Thus, only 8% of the hospital display information on the public-private partnerships related to the year 2016, 6% present at individual level information related to the years 2016 and 2015 and only one hospital brings out information related to three successive years, respectively 2016, 2015, 2014. Also, there can be noticed that most of the investigated hospitals publish on the official sites only historical information which, not up-dated, is obsolete and irrelevant. Another aspect diminishing the relevance of information is the display of information without stating the related year, aspect identified in the case of 4% of the investigated hospitals.

In respect of the administrative-territorial criteria, there are no significant differences regarding the degree of information transparency related to the public-private partnership at hospital level. In terms of centralization of hospitals subordinated to the Health Ministry according to regions, the capital of Romania, Bucharest, logically stands out, with 24 hospitals, representing 33% out of the hospital total. Out of these, 9 hospitals, respectively 38% do not display information on the on-going public-private partnerships, and one hospital does not have a functional official site.

Complementarily, the limitation of the transparency of information related to the public-private partnership is given by the date and the difficulty and heterogeneousness of the manner of displaying the information. In this respect, we noticed the difficult process of identifying the information due to the lack of a section dedicated to the public-private partnership with direct access, as well as the lack of section headings containing such information.

In the process of identifying the information on the public-private partnership, we noticed the fact that such information are mainly included within the section called “Public Procurement” which limits the conceptual significance of the public-private partnership.

4 Conclusions, Limits and Future Research Directions

The performed research underlines the fact that from conceptual point of view the public-private partnership generates surplus value at the public sector level, yet, it shows a series of sensitive elements involving its prudential approach. In terms of concept, the issue of the information transparency regarding the public-private partnership in the public hospitals is a topic approached restrictively at the professional literature level.

The research performed at the level of public hospitals subordinated to the Health Ministry from Romania shows a limitation of the information transparency in respect of the public-private partnership. Also, the investigation process of the official sites in search of information specific to the public-private partnership proved to be a difficult one, because of the heterogeneousness of naming the section which could contain such information and because of the direct access which needs successive accessing of more sections, fact consuming additional time.

Overall, the results disclosed the following: 40% of hospitals do not display information on the public-private partnerships in which they are involved, 18% present the notifications of public procurement and the appropriate documentation, 15% publish information on the public procurement contracts, 7% present the list of hospital partners limited to their names, 4% display the annual public procurement plans. Only 1% of the hospitals publish the situation of the public procurement evolution, which allows the analysis of their status.

In respect of time criterion, the heterogeneousness and discontinuity of the information displayed do not ensure their comparison and relevance. In this respect, only one hospital publishes information related to the last three successive years (2016, 2015, 2014), and 8% publishes information regarding the public-private partnerships related to the year 2016.

In regional terms, 24 hospitals are situated in Bucharest, out of which 9 do not display information regarding the public-private partnerships carried out. In this respect, we consider that the regulating framework of the public-private partnership in Romania must be reconsidered and approached in an exhaustive, transparent and relevant manner in order to offer to stakeholders complete, credible, comparable and pertinent information. Complementarily, taking into account the financing mechanism, we consider that public hospitals should publish voluntarily information on the public-private partnership.

In terms of research limitations, we consider that one of the limits is the lack of compatibility at the level of similar hospitals from the European Union member states given that there was investigated only the information on the public-private

partnership published on the official sites by the public hospitals subordinated to the Health Ministry from Romania. Though, taking into consideration the fact that at the European Union level the structure of the public health system is different from one country to another and there is a portfolio of models to finance the public health system, there is the risk of non-existence of hospitals similar to those included in the area of research and of limited compatibility.

As future research directions, we propose to carry further the research in respect of the degree of information transparency regarding the public-private partnership also at the decentralized hospital level within the local public administration.

Acknowledgment This work has been done through the Partnerships Program in Priority Areas—PNII, developed with the support of MEN-UEFISCDI, project no. 334/2014, project code PN-II-PT-PCCA-2013-4-0873, project title “A New Model for Corporate Risk Assessment: A Scientific Tool for Knowledge Based Management.”

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Insolvency of the Hotels Among Visegrad-Plus Countries

Tomáš Heryán

Abstract The paper has focused on the problematic of corporate insolvency among hotels in Visegrad-PLUS countries. Visegrad Group, well known as V4 (Czech Republic, Hungary, Poland and Slovakia), is negotiating with two possible new members, Austria and Slovenia. However, the problem of insolvency affects the hotels as well. The aim of the study is to investigate how is the solvency of the hotels among V4 PLUS countries affected by their liquidity and the relations with their debtors. As the main estimation method it has been used GMM regression with pooled data of hotels from selected countries. It is obtained annual data for the hotels' balance sheets and the profit and loss statements from Bureau van Dijk's AMADEUS international statistical database. It is argued that turnover of creditors' claims is positively affected by turnover of debtors' receivables among hotels in all selected countries. In some cases even current liquidity has a significant impact on that. The situation is the most obvious in the case of the hotel industry of Hungary and Slovenia, two economies whose companies are considered as the most affected by the corporate insolvency due to Creditreform agency. Finally, there are some ideas for future research in that area.

Keywords Insolvency • Receivables of debtors • Claims of creditors • Hotel's liquidity • GMM panel regression • Visegrad group PLUS

1 Introduction

Development of infrastructure has been mentioned within the V4 Trust–Program for the Czech Presidency of the Visegrad Group, which took the period from July 2015 till June 2016 (Visegrad group 2015). Until the end of the Czech presidency the Czech president Miloš Zeman had negotiated with Austria and Slovenia whether or not they would like to join the Visegrad Group. With better infrastructure will also increase the tourism in these countries. But how is the financial health

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among the hotel industries of those Visegrad-PLUS countries? In according with the annual report of Creditreform agency, however, the problem of insolvency is the biggest in both Commerce and Services from the key economic sectors across the Europe. These two sectors includes hotels and catering (only when sectoral information was lacking, the relevant figures have been included under the Services).

Current study fills the gap within the research of hotel industry among European countries. Whereas the previous study proved that there are some significant relations between earnings and relationships of both, debtors as well as creditors within the hotel industries in Visegrad countries, current study has focused on the financial relations in V4 PLUS countries. The article contributes to the literature by providing a comparison between hotel industries of V4 (Czech Republic, Hungary, Poland and Slovakia) PLUS two different countries (Austria and Slovenia) from the financial point of view. The aim of the study is to investigate how is the solvency of the hotels among V4 PLUS countries affected by their liquidity and the relations with their debtors.

The study is structured as follows. Next Sect. 2 reviews a few literature sources connected with the financial problematic of the hotel industry. Section 3 describes the data as well as used methodology of the GMM modelling. In Sect. 4 there are highlighted some important findings within the discussion on empirical results. Finally, Sect. 5 concludes the paper.

2 Literature Review

Chou (2013) investigated causal relationships between tourism spending and economic growth in ten transition countries in the period from 1988 till 2011. Panel causality analysis, examined dependency and heterogeneity across countries (including V4 countries), is used herein. His results support the evidence on the direction of causality. He mentioned that the relation between tourism spending and economic growth for developing as well as developed countries has been highly researched over the past few decades. In examining causal relations within the tourism spending and economic growth, he employs the causality approach with pooled data instead of the method with time series, since pooled data sets include analysis not just from the time dimension but also the cross-section analysis. According to that, non-stationary panel tests (unit root, cointegration and causality) have become highly usable econometric methods during last few years. (Chou 2013)

It is argued by Dwyer et al. (2004) that the role of tourism for economies is well recognized. As the result, when the tourism could have changed or policy shifts have been considered, there is an interest in determining which impact on the economy it can have both, they mentioned as well. Nevertheless, this approach to economic evaluation typically undertaken in the tourism context, is still incomplete and misleading. Among others they argue a few interesting research questions as: (i) Which impact could a change in domestic or international tourism, have had on

the economic activities? (ii) Which impact could the increase in outbound tourism, have had on domestic activities? (iii) Which impact on activities within one economy could have intrastate tourism had? (Dwyer et al. 2004)

It is argued by Atan and Arslanturk (2012) that tourism is the world's largest business industry as well as almost the fastest growing one, accounting for over one-third of the value of total trade services across whole world. They also argue that this business industry, in past few decades, has started to be important source of income to these still undeveloped economies. On the other hand Turkey as well as its aspect of tourism has started to be within a few countries' attention, those undeveloped economies in particular. Recent literature contains a number of papers connected with both, tourism and economic growth nexus using a type of research methods i.e. Granger causality, cointegration as well as regression analysis with panel data. However, there are not almost any study incorporating input-output analysis according to them. According to their opinion, in Turkey, tourism is growing so fast and its contribution to the economy is therefore significant. According their results, especially according to the hotel and restaurants indicators' significance, that business sector can definitely be transformed into a growth of whole economy and selected sectors can benefit from that which should be equally vibrant. Identification of such sectors is important for policy implications as they may constrain the growth impact of tourism due to them. Their analysis shows that hotel industry has important and significant impact on the economy. Even though the tourism is not a key sector in the economy, activities of travel agencies indicators, tourism sector has high backward linkage in the economy, as well. According to their results, it is also obvious that entire input of other selected business sectors to the output in the tourism has been very high and the tourism sector has been in a system of nurturing other sectors therefore. Hence the tourism business sector as well as hotel industry will support the production in other business sectors, with a considerable impact on the growth.

Onețiu and Predonu (2013) argue whether the efficiency can be a fundamental development and the tourism can be an integral part of economic activities, then it should be considered as key factors both, social and economic development of their state. Within this study they intend to investigate economic and social efficiency which could increase the tourism within the country. As the first, to show the economic efficiency of the tourism business industry in Romania, they started from the principle of the economic efficiency, by comparing its effects with the effort. Secondly, activities of tourists, using resources available to that, generate not just economic, but even social effect. Both effects have been analysed in their study and therefore both economic and social factors as well as their effects and also efficiency of each component simultaneously. Furthermore, they investigated what indicators can affect the economic as well as social efficiency, according to the generalized method for determining both types of the efficiency. As the last but not least, they argue that tourism is very closely related to the culture and civilization, and their interdependent relations. Using the natural resources, human and financial placed at its disposal, tourism can really generate these economic and social indicators what may rise the economic efficiency, progress and civilization. Finally,

they considered that problematic with particular relevance and importance to economic development and the growth of entire social welfare (Onetiu and Predonu 2013).

3 Data and Methodology

The paper has obtained annual data from Amadeus statistical financial database of hotels from Visegrad countries (Czech Republic, Hungary, Poland and Slovakia) PLUS two different countries (Austria and Slovenia). Time series are from 2005 till 2014. In particular it has been used selected variables from hotels' financial statements as their Turnover, Debtors and Creditors and Other current assets which includes debtors' receivables as well as the cash and cash equivalents (excluded the stocks), and all current liabilities, all in EUR. Numbers of hotels for each country included in the database are in the parentheses: Austria (4950), Czech Republic (1484), Hungary (1881), Poland (4194), Slovakia (786), and Slovenia (421). Nevertheless, in according to the missing data we have been able to use only 397 Austrian, 905 Czech, 146 Hungarian, 822 Polish, 463 Slovak and 263 Slovenian hotels within cross-sections of our panel estimations.

As the first it has been examined three variables for each country, current liquidity $L2_{it}$, turnover of debtors' current receivables TRD_{it} and turnover of creditors' claims TLC_{it} , in according to eqs. (1), (2) and (3):

$$L2_{it} = \frac{\text{current assets}_{it}}{\text{current liabilities}_{it}}, \quad (1)$$

$$TRD_{it} = 365 / \left(\frac{\text{Turnover}_{it}}{\text{Debtors}_{it}} \right), \quad (2)$$

$$TLC_{it} = 365 / \left(\frac{\text{Turnover}_{it}}{\text{Creditors}_{it}} \right), \quad (3)$$

where $L2_{it}$ means current liquidity of hotel i at time t in each country, *current assets* _{it} have excluded the stocks, TRD_{it} means turnover of current receivables of debtors (simply $Debtors_{it}$), TLC_{it} means turnover of current claims of creditors (simply $Creditors_{it}$), finally $Turnover_{it}$ is total revenues taken from the profit and loss statement of the hotel.

As the main estimation method it is used Generalized Method of Moments (GMM) as in Růčková (2015). It is described through next eq. (4):

$$\begin{aligned} TLC_{it} = & \beta_1 TLC_{i(t-1)} + \alpha_{it} + \beta_2 TRD_{it} + \beta_3 TRD_{i(t-1)} + \beta_4 L2_{it} \\ & + \beta_5 L2_{i(t-1)} + \varepsilon_{it}, \end{aligned} \quad (4)$$

Table 1 Corporate insolvencies in V4 PLUS

	2010	2011	2012	2013	2014	% Change 2013/2014
Austria	6657	6194	6266	5626	5600	-0.5
Czech Republic*	5559	6753	8398	6021	3563	-40.8
Hungary**	17,487	30,757	50,224	46,397	60,637	+30.7
Poland	665	762	908	926	864	-6.7
Slovakia	830	870	866	880	831	-5.6
Slovenia	510	675	595	941	1302	+38.4

*Since 2013 some bankruptcies by self-employed persons are included under private insolvencies

**Bankruptcies and other liquidations

Source: Author's illustration from Creditreform (2015)

where endogenous dependent variable is TLC_{it} of hotel i at time t within each country, among exogenous regressors as the first there is lagged $TLC_{i(t-1)}$ due to using of GMM estimation method. Akinci et al. (2013) proved that applying a pseudo general-to-specific model reduction method within the application of the GMM estimator avoids the problems with multicollinearity. Therefore, the pseudo general model includes the current and first lagged value of all regressors, i.e. $TRD_{it}, TRD_{i(t-1)}, L2_{it}, L2_{i(t-1)}$. Symbols α_{it} and ε_{it} are a constant and residuals of the estimation.

The investigated issue focuses on the problem of insolvencies among European companies. Therefore we see those corporate insolvencies in V4 PLUS in Table 1. We see that countries with worst problems, where the hotels are affecting to the insolvency issue, are Slovenia and Hungary. Creditreform (2015) has argued that Slovenian economy (+38.4%) and the Hungarian (+30.7%) both economies are, however, the negative leaders within this group due to the highest insolvencies in total. In Slovenia, the economic growth is stronger in comparison to the growth which was expected. The insolvency problem there remains fragile, which has been affected by the economic situation in Italy as well as in Austria. Enterprises in Slovenia have been suffering with a credit squeeze, as well. The Austrian GDP growth in 2014 was just 0.3%, which was considerably lower than in whole EMU, which was not enough to have any notably favourable influence on the insolvencies' development. Hungary has earned from the usage of those European Union structural funds in 2014. It has been increased the investment activity of a public in Hungary. Hungarian private consumption was insufficient, however. Otherwise, especially marked declines in the number of insolvencies in the 2013/14 period have been investigated by the Czech Republic (-40.8%). In 2014, the Czech economy is picking up again and the GDP has increased after recession which affected the economy 2 years. Their export increased very much and due to that the Czech economy has increased as a whole. Last but not the least, Poland has reported decreasing of Polish insolvencies (-6.7%). That fact means slow but real recovery for whole Polish economy (Creditreform 2015).

4 Discussion on Empirical Results

From the results among all three Tables included in Appendix we could have concluded interesting findings according to a stationarity. Whereas non-stationary time series have been proved within our data for all variables at the levels, in the first differences all selected time series have been proved as stationary. Therefore selected relations are estimated at the first differences of all variables.

The term solvency of a company means an ability to pay all its debts. Therefore it has been investigated, how is the ability of hotels to pay their creditors affected by both, their liquidity and turnover of debtors' receivables. In Table 2 we see impact of selected variables on the period in which V4 PLUS hotels are able to pay claims of their creditors. In according with arguments of Creditreform (2015) it would be interesting start with analysing the results of Hungary and Slovenia, two countries which are considered as the most affected by increasing of insolvency.

Hungarian hotel industry is affected by decreasing current liquidity of the hotels, $L2_{it}$ as well as lagged $L2_{i(t-1)}$ from previous year. The results suggest the biggest impact with negative sign on the period TLC_{it} in which the hotels are able to pay their creditors. The case of Slovenian hotel industry is difficult. Whereas liquidity does not matter, the turnover of creditors' claims TLC_{it} is positively affected most by period TRD_{it} in which debtors pay their receivables to the hotels. When the period TRD_{it} increases then the period TLC_{it} will increase extremely. However, Hungarian hotel industry suffers from the lower demand and low liquidity, but Slovenian hotels suffer from worse payment behaviour of their debtors.

Nevertheless, if we take a look at the Slovak hotel industry we see that the problem of increasing period TRD_{it} is bigger than in Slovenia. Their hotels can suffer from worse payment behaviour of hotels' debtors. Moreover, the case of Slovakia varies as the only one with positive impact of lagged $TLC_{i(t-1)}$ from the previous year. In all other cases β_1 of $TLC_{i(t-1)}$ is negative, which means that TLC_{it} will change next year in opposite way. It should be common, because it is impossible still minimize or maximize that period. Therefore it oscillates each other year due to the organizing of relations with hotels' debtors.

On the other hand, the situation in both Polish and Austrian hotel industry is similar to the Hungarian due to sign and high of $\beta_4 L2_{it}$. Big difference is just insignificant lagged $L2_{i(t-1)}$ against to Hungarian hotel industry. In according to

Table 2 Estimation output for hotels of V4 PLUS countries

	CZ TLC_{it}	HU TLC_{it}	PL TLC_{it}	SK TLC_{it}	AT TLC_{it}	SL TLC_{it}
$\beta_1 TLC_{i(t-1)}$	-0.0064*	-0.0009*	-0.0361*	0.6863*	-0.4224*	-0.1006*
$\beta_2 TRD_{it}$	1.0701*	0.0002*	0.8887*	5.1322*	1.1470*	2.7110*
$\beta_3 TRD_{i(t-1)}$	1.1151*	0.6626*	0.0792*	-4.0684*	0.4557*	0.2213*
$\beta_4 L2_{it}$	-2.0706	-73.1146*	-27.9536*	-1.7036*	-15.9065*	-0.0997
$\beta_5 L2_{i(t-1)}$	8.7018*	-51.6970*	5.5819*	0.5115	7.2305*	-0.1650

Note: Symbol * means statistical significance at 1% level

Source: Author's calculations

that a possible insolvency among hotels in Austria and Poland is not so serious, yet. We see also the biggest negative impact of $TLC_{i(t-1)}$ in Austria. It would mean that Austrian hotels are the most active in the organizing of relations with hotels' debtors.

Finally, the case of the Czech hotel industry seems to be the most stable. Its negative β_1 of $TLC_{i(t-1)}$ is close to zero. Similar impact of TRD_{it} as well as $TRD_{i(t-1)}$, the both is close to 1.00. And positive β_5 of lagged $L2_{i(t-1)}$ assumes that TLC_{it} increases if current liquidity has increased in previous year (it is connected with increase of the business risk). There is no evidence of significant higher impact of any regressor.

5 Conclusion

The aim of the study was to investigate how is the solvency of the hotels among V4 PLUS countries affected by their liquidity and the relations with their debtors. It was concluded that lower current liquidity affected negatively hotels' solvency in Hungary (which is facing to the problem of the corporate insolvency due to Creditreform agency), but also in Poland and in Austria. The length of turnover of debtors' receivables would negatively affect the solvency in Slovakia and Slovenia (which was also facing to the corporate insolvency in 2014).

In general, it has not been argued that all hotels of those V4 PLUS countries suffered by highlighted problem of insolvency. Nonetheless, estimated results suggest that many of the hotels can suffer by insolvency. It has been differentiated between two reasons why the hotels could be insolvent. However, some of them can be affected by the both, lower level of demand connected with lower level of current liquidity as well as bad payment behaviour of hotels' debtors connected with the increasing of period when they can use money to pay their debts.

In the future research it can be beneficial to compare the financial situation of hotel industries within all Central and Eastern European (CEE) countries. It should be highlighted that the problematic of hotels' financial management is also connected with the corporate governance and sometimes with the foreign direct investments or franchising among international hotels' chains.

Acknowledgement This research was financially supported by Silesian University in Opava within the project IGS 21/2016 called "Mezinárodní hotelové řetězce".

Appendix

Table 3 Panel unit root test for stationarity: summary (at levels)

Method	$L2_{it}$	Cross	Obs	TRD_{it}	Cross	Obs	TLC_{it}	Cross	Obs
Austria									
<i>Null: Unit root (assumes common unit root process)</i>									
Levin, Lin & Chu test	0.0000	1872	12,420	0.0000	65	363	0.0000	68	360
<i>Null: Unit root (assumes individual unit root process)</i>									
Im, Pesaran and Shin W-stat	0.0000	1728	11,988	0.0000	53	327	0.0000	49	303
ADF—Fisher Chi-square	0.0000	1867	12,405	0.0000	65	363	0.0000	68	360
PP—Fisher Chi-square	0.0000	1867	12,732	0.0000	65	369	0.0000	67	363
Czech Republic									
<i>Null: Unit root (assumes common unit root process)</i>									
Levin, Lin & Chu test	0.0000	753	4713	0.0000	505	3180	0.0000	510	3209
<i>Null: Unit root (assumes individual unit root process)</i>									
Im, Pesaran and Shin W-stat	0.0000	676	4482	0.0000	452	3021	0.0000	454	3041
ADF—Fisher Chi-square	0.0000	752	4710	0.0000	505	3180	0.0000	510	3209
PP—Fisher Chi-square	0.0000	752	4803	0.0000	505	3246	0.0000	509	3278
Hungary									
<i>Null: Unit root (assumes common unit root process)</i>									
Levin, Lin & Chu test	0.0000	112	667	0.0000	117	710	0.0000	148	1015
<i>Null: Unit root (assumes individual unit root process)</i>									
Im, Pesaran and Shin W-stat	0.0000	91	604	0.0000	100	659	0.0000	140	991
ADF—Fisher Chi-square	0.0000	110	661	0.0000	117	710	0.0000	148	1015
PP—Fisher Chi-square	0.0000	110	674	0.0000	117	725	0.0000	146	1028
Poland									
<i>Null: Unit root (assumes common unit root process)</i>									
Levin, Lin & Chu test	0.0000	759	4155	0.0000	719	3981	0.0000	687	3862
<i>Null: Unit root (assumes individual unit root process)</i>									
Im, Pesaran and Shin W-stat	0.0000	613	3717	0.0000	587	3585	0.0000	570	3511
ADF—Fisher Chi-square	0.0000	759	4155	0.0000	719	3981	0.0000	687	3862

(continued)

Table 3 (continued)

Method	$L2_{it}$	Cross	Obs	TRD_{it}	Cross	Obs	TLC_{it}	Cross	Obs
PP—Fisher Chi-square	0.0000	759	4247	0.0000	719	4066	0.0000	687	3933
Method	$L2_{it}$	Cross	Obs	TRD_{it}	Cross	Obs	ZAV	Cross	Obs
Slovakia									
<i>Null: Unit root (assumes common unit root process)</i>									
Levin, Lin & Chu test	0.0000	456	2835	0.0000	403	2480	0.0000	412	2525
Null: Unit root (assumes individual unit root process)									
Im, Pesaran and Shin W-stat	0.0000	415	2709	0.0000	366	2369	0.0000	372	2405
ADF—Fisher Chi-square	0.0000	453	2823	0.0000	403	2480	0.0000	412	2525
PP—Fisher Chi-square	0.0000	453	2870	0.0000	403	2521	0.0000	412	2562
Slovenia									
<i>Null: Unit root (assumes common unit root process)</i>									
Levin, Lin & Chu test	0.0000	249	1110	0.0000	235	1068	0.0000	236	1041
<i>Null: Unit root (assumes individual unit root process)</i>									
Im, Pesaran and Shin W-stat	0.0000	214	1005	0.0000	210	993	0.0000	211	966
ADF—Fisher Chi-square	0.0000	248	1107	0.0000	235	1068	0.0000	236	1041
PP—Fisher Chi-square	0.0000	248	1115	0.0000	235	1075	0.0000	236	1047

Note: Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality

Source: Author's calculation in EViews 9.5

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Structural Changes in the Interdependence Among Polish and Key Capital Markets in the World in the Years 2004–2014

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Abstract Globalization process and main determinants of development increase the level of interrelationships among highly developed economies. The role of these factors especially in relation to capital markets has become an important subject of economic research. As a result, the main aim of the article was to analyze the changes in the interdependence among the most important capital markets in the world and Polish capital market with special consideration of potential influence of the last global financial crisis. Thus, the interdependence among capital markets of United States, Great Britain, Germany and Poland were analyzed. In the research DCC-GARCH model was used. In the first stage the interdependence among the selected markets was analyzed. A research hypothesis pointing to a similar course and changes of the interdependence among the markets was verified. Then the analysis of breakpoints for the received conditional correlations processes was performed. The procedure enabled to verify the influence of the global financial crisis on the interdependence among the markets and divide the analyzed period in three sub-periods: a time of prosperity, a time of financial distress and a period of return to relative stability.

Keywords Capital markets interdependence • Multiple breakpoint testing • DCC-GARCH model • Conditional variance • Conditional correlation • Bai-Peron test

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1 Introduction

Interdependence among economies has been considered as an important scientific problem in for last decades, which affects both theoretical and empirical research in economics. It influences macroeconomic stability and sustainability of countries (Miklaszewicz 2016; Brózda 2016; Majerová 2016; Lajtkepová 2016; Balcerzak 2016a; Balcerzak et al. 2016a, b; Balcerzak and Rogalska 2016; Pietrzak and Balcerzak 2016a), the institutional reforms (Balcerzak 2009, 2015; Balcerzak and Pietrzak 2016a, 2017), technological changes and its spillover effects (Balcerzak 2016b, 2016c; Balcerzak and Pietrzak 2016b; Pietrzak and Balcerzak 2016b). It could be difficult to point an economic sphere, which is not affected with this phenomenon. However, last financial crisis has provided special incentives for research concerning interdependence among capital markets. Before the crisis the mainstream economist tended to concentrate on the benefits of interdependence among financial markets, where the phenomenon was mainly considered as a natural mechanism that supports effectiveness of the global financial system. The interdependence among markets has been treated as a factor that can help in the process of absorbing markets shocks and to some extent accelerate the process of regaining market equilibrium (see Pritsker 2001; Forbes and Rigobon 2002; Baur 2003; Corsetti et al. 2005; Pericoli and Sbracia 2003; Billio and Caporin 2010; Heryán and Ziegelbauer 2016; Fałdziński et al. 2016). On the other hand, the last financial crisis has moved the main attention of economists to potential ineffectiveness (Borowski 2016; Akbalik and Tunay 2016), or negative consequences of the interdependence among markets for growth in real sphere, and the general risks related to influence of financial markets and financialization of economy (Arcand et al. 2012; Aoki and Nikolo 2012; Azkunaga et al. 2013; Gawrońska-Nowak and Grabowski 2016; López-Pérez 2016; Glinka 2016). As a result, it can be claimed that in spite of high supply of research concerning the interdependence among capital markets, it is still actual scientific subject.

In the case of studies on interdependence among capital markets it is quite common to classify the periods of analysis as phases of stability or standard operation of markets and the sub-periods of instability, and crisis. In both sub-periods one can find shocks that are easily transferred form one capital market to another. As it has been stated above, during the periods of stability interdependence among markets can support the process of absorption of the shocks, as a result in longer time, the situation returns to some kind of equilibrium. However, during the crisis the functioning of the capital markets is disrupted, which is often accompanied by a significant increase in the level of interdependence among markets. Thus, in the time of the crisis, when some phenomena related to contagion effect are intensified, the growing interdependence among markets can lead to strengthening and prolonging the crisis. Therefore, the identification of periods of relative market stability and turmoil periods appears to be an important element, which can help to assess the risks associated with the influence of capital

markets (see Forbes and Rigobon 2002). Thus, it can help to determine the potential policy tools and actions during the crisis.

In this context, the main purpose of the article was to characterize the system of interdependence among capital markets of the United States and key European capital markets and the market of Poland. The study indicated a level of interdependence among the selected markets and it enabled to assess the stability of conditional correlation for selected indices in time. An additional objective of the study was an attempt to capture in time the effects of increasing imbalances that led to the global financial crisis. In this regard, the article can be placed among the studies, whose aim is to attempt to provide a more precise periodization for the development and “eventual end” of the last financial crisis. In the research, a hypothesis on the occurrence of the crisis situation in the global capital markets in the years 2007–2012 and the return of the markets to the period of relative stability after the year 2012 was verified.

2 Research Methodology

In order to assess the interdependence among the selected capital markets DCC-GARCH model was applied. Estimation of parameters of the model enables to determine conditional correlation coefficients, which describe the strengths of interdependence among the analyzed markets. In the DCC-GARCH model the conditional variance equation is dependent on the lagged conditional variance and on squared returns with the consideration of conditional means. In the case of the conditional correlation equation, the independent variables are the standardized residuals from variance equation and lagged conditional correlations (see. Engle 2002, 2009; Fałdziński and Pietrzak 2015).

The specification of the DCC-GARCH model can be given as follow (see: Zinecker et al. 2016; Fałdziński and Pietrzak 2015):

$$\mathbf{Y}_t = \boldsymbol{\mu}_t + \boldsymbol{\eta}_t, \quad \boldsymbol{\eta}_t | \mathbf{F}_{t-1} \sim t(0, \mathbf{D}_t \mathbf{R}_t \mathbf{D}_t, \nu), \quad (1)$$

$$\mathbf{D}_t^2 = \text{diag}\{\mathbf{H}_t\}, \quad \mathbf{H}_t = \mathbf{V}_{t-1}(\boldsymbol{\eta}_t), \quad (2)$$

$$\mu_{i,t} = \gamma_{i,0} + \gamma_{i,1} y_{i,t-1}, \quad (3)$$

$$H_{i,t} = \omega_{i,1} + \alpha_{i,1} \eta_{i,t-1}^2 + \beta_{i,1} H_{i,t-1}, \quad (4)$$

$$\boldsymbol{\varepsilon}_t = \mathbf{D}_t^{-1} \boldsymbol{\eta}_t, \quad (5)$$

$$\mathbf{R}_t = \text{diag}\{\mathbf{Q}_t\}^{-0.5} \mathbf{Q}_t \text{diag}\{\mathbf{Q}_t\}^{-0.5}, \quad (6)$$

$$\mathbf{Q}_t = \bar{R}(1 - a - b) + a\boldsymbol{\varepsilon}_{t-1}'\boldsymbol{\varepsilon}_{t-1} + b\mathbf{Q}_{t-1}, \quad (7)$$

where:

\mathbf{Y}_t —the multivariate process of returns,

$\mu_{i,t}$ — i -equation of conditional means of returns,

$\gamma_{i,0}, \gamma_{i,1}$ —the parameters of i -equation of conditional means in the case of assuming AR(1) model,

$H_{i,t}$ — i -equation of conditional variance of returns,

$\omega_{i,1}, \alpha_{i,1}, \beta_{i,1}$ —the parameters of i -equation of conditional variance in the case of assuming GARCH (1,1) model,

$\nu_1, \nu_2, \nu_3, \nu_4$ —the number of degrees of freedom in the Student's t-distribution for the chosen indices in the first stage of estimation,

ν —the number of degrees of freedom in the Student's t-distribution in the second stage of estimation,

ϵ_t —the matrix of standardized residuals,

\mathbf{R}_t —the conditional correlation matrix,

a, b —the parameters of equation of conditional correlation.

For the estimation of the DCC-GARCH model parameters two step maximum likelihood method with conditional Student's t-distribution was applied. In the first step of the method the parameters of the conditional variance equations and means are estimated. Then, in the second step the parameters of the conditional correlation equation are estimated (see Engle 2002, 2009; Zinecker et al. 2016).

Then, in order to evaluate the stability of a conditional correlation in time Bai-Perron test was used (see Bai 1994, 1997; Bai and Perron 1998, 2003). The idea of the test is to check the stability of the parameters in the case of the adopted specification of the regression model. In the test, it is assumed that the parameter can be unstable over time and vary significantly depending on the selected segment. Application of the test allows to identify a given number of breakpoints at a particular point in time, where the structural changes occur. Due to the existing m -breakpoints, the whole time series can be divided into $m + 1$ heterogeneous segments. In the case of the analysis of structural changes of the conditional correlation between two market indices, Bai-Perron test is used to determine the point of significant changes of the mean for the dependent variable.

In the case of one breakpoint identification the estimated regression equation can be given as follow:

$$\mathbf{Y}_t = \mathbf{D}\boldsymbol{\beta} + \gamma_1 \mathbf{Y}_{t-1} + \epsilon_t, \quad (8)$$

$$\mathbf{D} = \begin{bmatrix} 1 & 0 \\ \cdot & \cdot \\ 1 & 0 \\ 0 & 1 \\ \cdot & \cdot \\ 0 & 1 \end{bmatrix}, \quad \boldsymbol{\beta} = \begin{bmatrix} \beta_1 \\ \beta_2 \end{bmatrix}, \quad (9)$$

where:

\mathbf{Y}_t —vector of values of conditional correlation,

\mathbf{D} —matrix of dummy variables taking into account two segments for the dependent variable

β_1, β_2 —the parameters determining the level of mean for each segment.

In the case of identification of a bigger number of breakpoints the matrix D should be modified. The matrix should include a given number of segments and the vector of parameters β_i should be extended. The identification of breakpoint or points in time, where the residual sum of squares from eq. 8 is minimized. In the case of identification of a different number of breakpoints, one should select the option, which results in the most significant change in the level of average conditional correlation coefficient for the whole sample. The Bayesian information criterion (BIC) can be applied to choose the number of breakpoints.

3 Empirical Research

Based on the aim of the paper the research on the system of interdependencies among chosen capital markets was proposed. In order to describe the changes in the United States, Great Britain, Germany and Poland time series for the following indices were used S&P500, FTSE100, DAX, WIG.

The United States capital market was chosen as it is considered as the most developed and one of the most important markets in the world. Based on the previous research of the authors (see: Balcerzak et al. 2016a, b; Zinecker et al. 2016; Fałdziński et al. 2016; Pietrzak et al. 2016, 2017) it was assumed that from the European perspective the markets of Great Britain and Germany are the most important in the sense of potential influence. Last, the choice of Polish capital markets relates to the fact that it is the key market in Central and Eastern Europe (see: Meluzín and Zinecker 2016).

The research was conducted on the basis of logarithmic rates of return calculated for the given indices in the period 2004–2014. The year 2004 was the first year of analysis, as it was the year of the biggest European Union enlargement. It can be considered as an important institutional change in Europe, which significantly influenced the growth of financial linkages in the case of capital markets across the continent. The year 2014 was the last year with available data. From the perspective of the aims of the research the period was long enough and it covered the time of prosperity before the last financial crisis, the time of the crisis and the sub-period of recovering from the global financial distress.

DCC-GARCH model enabled to assess the level of interdependence among the capital markets. Additionally, it provided information on the changes in the interdependence in the research period. The analysis of the separate indices indicated a maximum degree of autoregression equal to one. The estimation of volatility models GARCH (p,q) indicated that for all indices model GARCH (1,1) can be considered as the best fit. The received preliminary results of the analysis of time series allowed to accept specification of the DCC-GARCH model given in eqs 1–4. Table 1 shows the results of estimating model parameters for S&P500, FTSE100, DAX and WIG indices. The estimated parameters of conditional mean equation and conditional variance for each of the indices were statistically significant at the 5% significance level (except for the autoregression parameter for DAX index). The

Table 1 The results of estimation of parameters of DCC-GARCH model

Parameter (index)	Estimate	p-value	Parameter (index)	Estimate	p-value
<i>The conditional means and conditional variance equations</i>					
$\gamma_{1,0}$ (S&P500)	0.076	~0.000	$\gamma_{3,0}$ (DAX)	0.098	~0.000
$\gamma_{1,1}$ (S&P500)	-0.056	0.001	$\gamma_{3,1}$ (DAX)	-0.002	0.902
$\omega_{1,1}$ (S&P500)	0.015	0.001	$\omega_{3,1}$ (DAX)	0.023	0.002
$\alpha_{1,1}$ (S&P500)	0.098	~0.000	$\alpha_{3,1}$ (DAX)	0.093	~0.000
$\beta_{1,1}$ (S&P500)	0.891	~0.000	$\beta_{3,1}$ (DAX)	0.896	~0.000
$\gamma_{2,0}$ (FTSE100)	0.055	~0.000	$\gamma_{4,0}$ (WIG)	0.067	~0.000
$\gamma_{2,1}$ (FTSE100)	-0.037	0.047	$\gamma_{4,1}$ (WIG)	0.059	0.001
$\omega_{2,1}$ (FTSE100)	0.013	0.005	$\omega_{4,1}$ (WIG)	0.014	0.004
$\alpha_{2,1}$ (FTSE100)	0.101	~0.000	$\alpha_{4,1}$ (WIG)	0.062	~0.000
$\beta_{2,1}$ (FTSE100)	0.891	~0.000	$\beta_{4,1}$ (WIG)	0.928	~0.000
ν_1	6.011	~0.000	ν_2	8.676	~0.000
ν_3	6.546	~0.000	ν_4	6.873	~0.000
ν	7.991	~0.000	-	-	-
<i>The conditional correlation equation</i>					
a	0.021	~0.000	b	0.962	~0.000

Source: Own estimation

sum of the parameters α_1, β_1 in the conditional variance equation is smaller than one. The parameters of conditional correlation equation obtained in the second step of estimation of the model were also statistically significant. All the parameters ν (number of degrees of freedom in the Student's t-distribution) were statistically significant, which were estimated in the first and second stage of estimation process. The obtained estimates ranging from 6.011 to 8.676 indicate the existence of fat tails in the distribution of residuals.

As it was pointed, the DCC-GARCH model allows the measurement of the strength of interdependence among the analyzed capital markets with application of conditional correlation. Its values for a given pair of indices indicate the strengths of interdependence between the two capital markets and the increasing or decreasing tendencies of the interdependence in time. Therefore, based on the results of parameter estimation of the DCC-GARCH model, the values of conditional correlations for the next pair of indices (S&P500 and FTSE100), (S&P500 and DAX), (S&P500 and WIG) were calculated. The estimated values of conditional correlations are presented in Fig. 1. The analysis of conditional correlations indicated the existence of a strong interdependence among the capital market of United States and United Kingdom and Germany (correlation values generally above 0.5). In contrast, the level of interdependence between the capital markets of the United States and Poland was lower. A similarity of path for three pairs of conditional correlations could be seen. This means that the valuation of the key European markets was highly dependent on the situation on the US market and the European market reactions to the situation in the US market were quite similar.

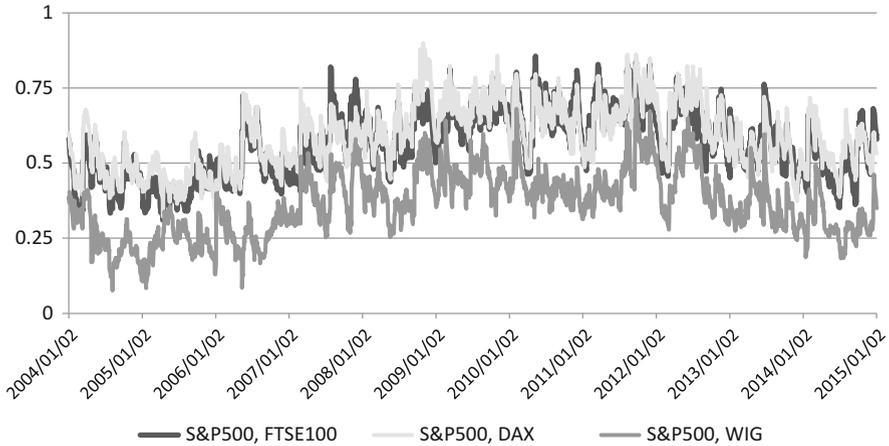


Fig. 1 The interdependence among the chosen pairs of indices. Source: Own estimation

Preliminary analysis of correlations presented in Fig. 1 indicated that during the global financial crisis from the year 2007 to the end of 2012, the level of interdependence among the analyzed markets had considerably increased. One could also notice a visible decline in the level of interdependence among the markets from the year 2013, which may be related to process of return to relative stability on the markets

Then, with the application of Bai-Perron test a set breakpoints was assessed, which can indicate a change in the nature of interdependence among the markets in certain moments of time. The identification of the structural changes in the interdependence among the capital markets allows to specify the period of stability of the markets and the period of financial turmoil. The results of the tests for the given pairs of correlations are given in Tables 2, 3, and 4.

In the next stage, for every pair of correlations a number of breakpoints was established. For this purpose the BIC criterion was applied. The results of Bai-Perron test indicated that in each case there was a single breakpoint at the same point in time (2007-02-27). It indicates the identification of a key point in the selected capital markets, when the level of interdependence has considerably increased. February 2007 can be considered as a month separating the period of prosperity on the global financial markets and the time of financial instability and distress. As a result the year 2007 can be considered as the key year for the financial markets, which can be also seen in the results of the tests allowing to identify the single breakpoint.

However, the application of Bai-Perron test also allows to identify additional number of breakpoints. As a result, in addition to identification of the key breakpoint, which can indicate the point of transition from the prosperity to the crisis, it is possible, and it is interesting, to identify two additional breakpoints. This approach could allow to determine whether, after a period of turmoil the markets managed to return to a relative stability, which would be indicated with another

Table 2 Results of Bai-Perron test for correlations between S&P500 and FTSE 100

Bai-Perron test						
Number of breakpoints(m)	0	1	2	3	4	5
RSS	2.005	1.992	1.987	1.985	1.985	1.985
BIC	-11991.104	-11993.095	-11984.796	-11971.461	-11955.867	-11940.101
Dates of the breakpoints						
Breakpoints	1	2	3	4	5	5
m = 1	2007-02-27					
m = 2	2007-02-27	2012-12-05				
m = 3	2006-05-12	2008-09-04	2012-12-04			
m = 4	2006-05-12	2008-09-04	2010-06-16	2012-12-05		
m = 5	2007-02-27	2008-01-04	2009-08-27	2011-04-20	2012-12-13	

Source: Own estimation

Table 3 Results of Bai-Perron test for correlations between S&P500 and DAX

Bai-Perron test						
	0	1	2	3	4	5
Number of breakpoints (m)						
RSS	2.202	2.188	2.182	2.178	2.177	2.179
BIC	-11887.658	-11889.715	-11881.815	-11871.459	-11856.243	-11838.064
Dates of the breakpoints						
Breakpoints		1	2	3	4	5
m = 1		2007-02-27				
m = 2		2007-02-27	2012-12-05			
m = 3		2006-05-12	2008-04-14	2012-12-04		
m = 4		2006-05-12	2008-09-04	2010-06-16	2012-12-05	
m = 5		2006-05-12	2008-01-04	2009-08-27	2011-04-20	2012-12-13

Source: Own estimation

Table 4 Results of Bai-Perron test for correlations between S&P500 and WIG

<i>Bai-Perron test</i>						
Number of breakpoints(m)	0	1	2	3	4	5
RSS	1.749	1.738	1.734	1.734	1.733	1.735
BIC	-12525.782	-12526.823	-12517.509	-12502.902	-12487.391	-12469.505
Dates of the breakpoints						
Breakpoints	1	2	3	4	5	
m = 1	2007-02-27					
m = 2	2007-02-27	2012-11-27				
m = 3	2006-10-27	2008-04-14	2012-09-21			
m = 4	2006-10-27	2008-04-14	2011-04-05	2012-11-27		
m = 5	2005-11-25	2007-07-24	2009-08-14	2011-04-07	2012-11-30	

Source: Own estimation

breakpoints. In the case of all three correlations, the identification of two breakpoints in late 2012 can indicate a shift of investigated capital markets to a period of relative market stability.

To sum up, the conducted research has enabled the identification of three sub-periods in the case of analyzed markets, the time of relative stability and international prosperity before the crisis in the year 2007, the time of distress and crisis in the years 2007–2012 and the time of return to relative stability of the global financial system after the year 2012. Thus, this result can be considered as a verification of the research hypothesis of the research.

4 Conclusions

In the research the system of interdependence among the Polish capital market and the key markets of the global economy (United States, Great Britain and Germany) was analyzed with the application of DCC-GARCH model. The research confirmed the significant interdependence among the markets and the fact that during the crisis, the level of interdependence has significantly increased. Then with the application of Bai-Perron test the analyzed research period was divided into three sub-periods: a period of relative stability 2004–2007, a period of turmoil 2007–2012 and a phase of return of the markets to relative stability after the year 2012. The research results were consistent with the hypothesis of the article.

In the future research the obtained results regarding the changes in the interdependence among the markets and identification of the period of the crisis should be extended with the studies on the effect of contagion during the periods of market distress.

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Identifying Risk Factors Underlying the U.S. Subprime Mortgage-Backed Securities Market

Lisa Sheenan

Abstract The devastating credit crunch and subsequent liquidity freeze of 2007–2008 plunged the global financial market into one of its worst crises ever experienced. It is now clear that subprime mortgage-backed securities lay at the heart of this catastrophe and that the risk underlying these securities was vastly underestimated. This paper examines this risk by performing principal component analysis, OLS regression analysis and rolling regression analysis on ABX.HE Indexes data. The results of the principal component analysis results show that the main principal component falls in importance with each new vintage issuance, suggesting that there were other unobserved factors contributing to the variation in the data. The OLS regression analysis also suggests that other factors were coming into play as the crisis evolved and the rolling regression analysis allows us to link these changes to important events in the crisis, namely the onset of the liquidity crisis in September 2008. Overall the results indicate that these assets are heterogeneous in nature, and not simply a continuation of the previous issuance.

Keywords Financial crisis • Credit crunch • Asset-backed securities • Subprime CDOs • Principal component analysis

1 Introduction

The years preceding the 2007 financial crisis have become known as the “Great Moderation”. During this period the United States entered an environment of unprecedented growth and prosperity and the financial system experienced some of its largest gains in history. Many Americans also achieved their dream of home ownership and ownership grew most rapidly amongst previously disadvantaged groups such as African Americans and Hispanics, as illustrated in Fig. 1.

This period followed the bursting of the dotcom bubble and the terrorist attacks of 2001, which both contributed to a need to encourage growth and confidence back into the system. In an attempt to do so the U.S. government introduced several

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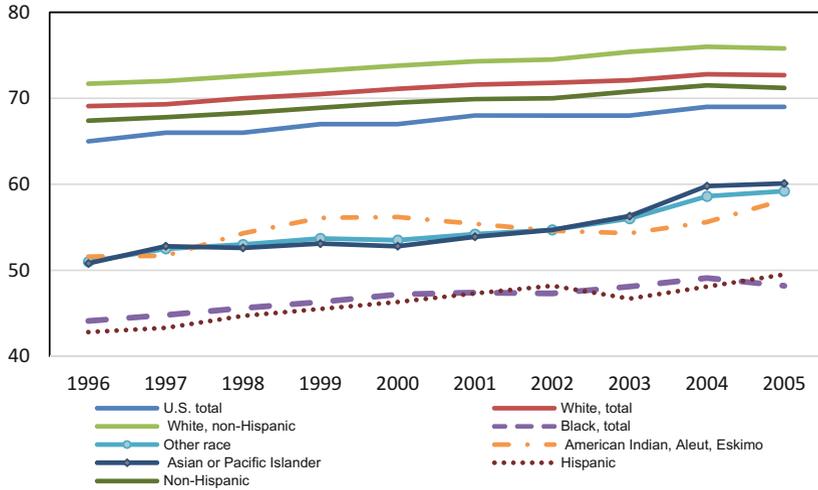


Fig. 1 U.S. home ownership by race 1995–2005. Source: Infoplease.com, U.S. Household and Family Statistics

accommodative interest rate policies that resulted in an abundance of available credit in the financial sector. This led to a boom in the housing market, causing home ownership to increase for the first time in three decades. After remaining at approximately 66% for over 30 years, home ownership increased from 66.8% in 1999 to 69% by end-2005. This growth led many market commentators to conclude that the housing sector was experiencing a speculative bubble (Goodman and Thibodeau 2008) and, as with any bubble, a bust was inevitable. The bust that did occur led the global economy into one of the worst recessionary periods experienced in almost a century (Sapir 2009). Economies worldwide were negatively affected and there were large spillover effects to countries that shared trading and capital links with the U.S. (Aksoy and Ugurlu 2013).

In the aftermath of the crisis it became clear that the source of the problem lay in the relatively new and small subprime mortgage-backed securities market (Dodd 2007). It also became clear that these complex securities had been misunderstood and mispriced by the majority of those trading them, an error that led to chaos in the U.S. financial system and sent global financial markets into turmoil (Sanders 2008).

This paper explores the risk underlying these securities in order to gain an insight into how a crisis that originated in the relatively small subprime mortgage-backed securities sector did not remain isolated to the real estate market, instead spreading rapidly across financial markets, affecting investor confidence, general market liquidity and real economies worldwide. In order to examine this market this paper focuses on the ABX.HE ('ABX' henceforth) indexes, the only available proxy for the U.S. subprime mortgage-backed securities market. These indexes became a key barometer of subprime mortgage market conditions for institutions and investors in the run-up to the crisis.

To analyze the ABX indexes/vintages OLS regression analysis is initially performed to establish correlation between the assets and several macroeconomic

variables employed to proxy for risk factors, namely house prices, market volatility, liquidity and counterparty risk.

The results suggest that mainly U.S. house prices are significantly related to ABX returns over the sample period. Next, principal component analysis (PCA) is performed on the four ABX vintages in order to reduce the dimensionality of such a noisy data set. The results suggest that the importance of the principal components driving variation in ABX returns varied across vintages, indicating that these were heterogeneous assets with different risk profiles. These principal components are then used in subsequent OLS regression analysis in place of ABX returns to establish correlation between these and the above-mentioned macroeconomic variables. The results indicate that these principal components are significantly related not just to house prices, but also general market volatility, liquidity and counterparty risk. Rolling regression analysis is then performed to observe coefficient behavior over the evolution of the crisis. The results illustrate the development of the crisis from a real estate problem to a much broader global crisis.

The analysis is also performed according to ABX asset rating, rather than according to ABX index. The results indicate that the rating of the asset affected the principal components underlying it more so than the vintage that it was issued in and that lower-rated assets were susceptible to more risk factors than higher-rated assets.

The paper proceeds as follows. Section 2 provides a timeline of the crisis, outlining important events and Sect. 3 discusses related literature. Section 4 then describes the data used in the analyses while Sect. 5 outlines the methods and discusses the results. Section 6 presents the analysis performed according to rating rather than index and Sect. 7 concludes.

2 Timeline of the Financial Crisis

As discussed in Sect. 1 the foundations of the crisis were laid in the early 2000s in response to the market slump caused by the bursting of the dotcom bubble and the terrorist attacks of 2001 (Kregal 2008). Low interest rates fueled the housing bubble and investors began to realize large gains from mortgage-backed securities.

However, by 2006 some players in the market were beginning to question the quality of the assets underlying these securities and by December of that year mortgage delinquencies and foreclosures were increasing (Sapir 2009). Around this time Goldman Sachs altered the firms' position on the mortgage market from positive to negative, although this information was not released publically (Morgenson and Story 2009). On February 27th 2007 Freddie Mac declared its intention to cease the purchase of the most risky subprime mortgages and mortgage-linked securities. On April 2nd a leading subprime lender, New Century Financial Corporation, filed for Chapter "Relational Capital of Enterprises: Identification of the Phenomenon" bankruptcy protection and by June mass downgrades of subprime mortgage-backed securities was underway. On June 1st Standard and Poor's (S&P's) and Moody's rating agencies downgraded more than 100 bonds backed by these securities and on July 11th S&P's placed 612 such products on credit watch. By the end of the year

interbank liquidity was rapidly drying up with the LIBOR-OIS spread, widely viewed as a measure of strength in the banking system, reaching an all-time high of 108 basis points on December 6th (Sengupta and Tam 2008). This contrasts with a spread of just ten points before the subprime crisis hit markets in August 2007. Such a high spread is a clear indicator of uncertainty and doubt within the banking system as institutions became less willing to lend to one another due to concerns about increasing counterparty risk. Numerous measures were implemented in an attempt to rescue the failing banking system, such as several cuts of the Federal Funds Rate and the introduction of the Economic Stimulus Act of 2008. Despite these measures things continued to deteriorate and in early March the 85-year old Bear Stearns collapsed and was subsequently acquired by JP Morgan for \$2 a share (Kelly 2009). Twelve months prior to this Bear Stearns was trading at almost \$160 per share and just 5 days before the takeover the share price stood at over \$68.

In autumn 2008 the crisis reached a critical turning point. On the 15th of September the fourth largest investment bank in the U.S., Lehman Brothers, filed for bankruptcy following drastic losses as the market rapidly lost confidence in the 158-year old Wall Street giant. The bank had failed to receive a bailout from the government or a buyout from another institution and became the largest bankruptcy in U.S. history. The fact that one of the largest investment banks in the U.S. was allowed to fail shook up Wall Street, causing even more panic and loss of confidence in the financial system. Lehman Brothers was also one of the largest players in the asset-backed commercial paper (ABCP) market, meaning that their demise further curtailed liquidity in the system. On the same day, Bank of America announced its intention to purchase one of the “Big Five” U.S. investment banks, Merrill Lynch, for \$50 billion.¹ The following day the Federal Reserve Bank of New York was authorized to lend up to \$85 billion to the American International Group (AIG), a company that mainly traded credit default swaps (CDS), a popular type of derivative at the time.² In early October the Emergency Stabilization Act of 2008 was passed by Congress, establishing the \$700 billion Troubled Asset Relief Program (TARP), which was announced publically on October 14th. In early January 2009 the Federal Reserve Bank of New York had begun to purchase fixed-rate mortgage-backed securities guaranteed by Fannie Mae, Freddie Mac and Ginnie Mae and the U.S. Treasury Department purchased a total of \$4.8 billion in preferred stock from 43 U.S. banks under the Capital Purchase Program. The remainder of the year saw the introduction of several strategies aimed at saving the banking system and promoting economic growth, such as the American Recovery and Reinvestment Act of 2009, which included a variety of spending measures and tax cuts, and the Homeowner Affordability and Stability Plan. In July Congress announced the members of the Financial Crisis Inquiry Commission, an

¹Prior to this the Big Five were Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman Brothers and Bear Stearns. In 2010 the Financial Times reported that the top five investment banks were now JP Morgan, Goldman Sachs, Bank of America Merrill Lynch, Morgan Stanley and Citi.

²Credit default swaps (CDS) form the basis of the credit derivatives market, (Hull 2009). Essentially they are privately negotiated insurance contracts in which the buyer makes periodic payments to the seller so as to obtain a payment if a specified credit event occurs.

organization established to investigate the causes of the crisis. Despite such measures the crisis continued to worsen and spread to other markets and countries. From the events outlined above it is clear why the period of September 2008 is viewed by many as the climax of the crisis (Ivashina and Scharfstein 2010).

3 Related Literature

The literature examining the ABX indexes remains relatively sparse. Fender and Scheicher (2008) perform principal component analysis (PCA) and regression analysis on the first two ABX vintages issued in order to ascertain the relevance of several pricing factors and how their importance may have changed over time. They find that for higher-rated assets risk appetite and liquidity risk become more significant while these are less important for lower quality ratings. They suggest that these factors had a large role to play in the deterioration of ABX prices as it was established that there were considerable unobserved factors driving subprime risk. However, the data analyzed end in mid-2008, before the onset of the credit crunch. Dungey et al. (2008) analyze three ratings classes over three ABX vintages using a latent factor model to uncover the factors behind the decline in the mortgage-backed securities market. They find that common and liquidity effects have an increasing influence on the performance of the ABX index. They also find that the influence of vintage factors varies significantly over the period analyzed, ultimately declining in significance as they become swamped by common risk factors. Gorton (2009) analyses the relationship between repurchase agreements and the ABX index and finds the two to be intricately related to one another. Mizrach (2011) analyses jump and co-jump frequency in the ABX and CME housing futures and finds that jumps appear prior to 2007, and that these are more pronounced in the housing futures markets. It is also found that almost 85% of jumps can be explained by news and housing futures. Though closely related to both Fender and Scheicher (2008) and Dungey et al. (2008), the analysis in this paper covers a longer sample than the former and extends the asset coverage of the latter. Hence, this study can provide additional insights into the behavior of the subprime mortgage-backed securities market.

4 Data

This paper employs daily price data from four ABX vintages.³ Returns have been generated from daily index prices using log differences and the sample ranges from January 19, 2006, until December 31, 2009. Table 1 reports summary statistics for the daily log returns of each vintage.

³For a detailed explanation of the ABX please see the Appendix.

Table 1 ABX summary statistics by vintage

Asset	Mean	Std. Error	Variance	Skewness	Kurtosis	Jarque-Bera	Min	Max
ABX 061								
AAA	-0.0002	0.009	0.0001	-0.84	18.69	14285.9	-0.08	0.08
AA	-0.0012	0.019	0.0004	-0.28	13.53	7438.00	-0.14	0.14
A	-0.0023	0.021	0.0005	-0.41	7.548	2339.93	-0.13	0.10
BBB	-0.0032	0.022	0.0005	-2.89	22.64	22162.1	-0.21	0.11
BBB-	-0.0031	0.020	0.0004	-1.81	13.92	8401.60	-0.19	0.11
ABX 062								
AAA	-0.0026	0.009	0.0001	-0.77	15.91	9037.9	-0.08	0.08
AA	-0.0014	0.020	0.0004	-0.24	11.42	4625.1	-0.14	0.14
A	-0.0027	0.023	0.0005	-0.34	6.209	1380.6	-0.13	0.10
BBB	-0.0037	0.023	0.0005	-2.65	19.30	14179.9	-0.21	0.10
BBB-	-0.0036	0.022	0.0005	-1.64	11.74	5254.4	-0.19	0.11
ABX 071								
AAA	-0.0003	0.0106	0.0001	-0.6995	13.15	5285.4	-0.08	0.07
AA	-0.0017	0.0220	0.0005	-0.1844	9.340	2639.1	-0.14	0.14
A	-0.0031	0.0248	0.0006	-0.2635	4.884	729.12	-0.13	0.10
BBB	-0.0043	0.0253	0.0006	-2.3965	15.99	8414.8	-0.20	0.10
BBB-	-0.0042	0.0234	0.0005	-1.4483	9.569	3019.6	-0.19	0.11
ABX 072								
AAA	-0.0003	0.012	0.0001	-0.63	10.46	2785.7	-0.08	0.07
AA	-0.0020	0.024	0.0006	-0.13	7.280	1330.9	-0.14	0.14
A	-0.0035	0.027	0.0007	-0.20	3.679	343.41	-0.13	0.10
BBB	-0.0048	0.025	0.0007	-2.25	13.68	5202.1	-0.21	0.10
BBB-	-0.0044	0.025	0.0006	-1.38	8.623	2057.9	-0.19	0.10

It is clear from Table 1 that normality is rejected in all cases, indicated by high excess kurtosis. Unsurprisingly, we observe negative means throughout, along with negative skewness. The minimum values exceed the maximum values in most cases, indicating that the losses experienced outweighed the gains realized. The lower-rated assets and the later vintages have higher standard deviations than the higher-rated assets and earlier issuances, suggesting these assets were riskier in nature. Raw correlation coefficients between the assets in each vintage are presented in Table 2.

The degree of correlation among almost all assets falls with each subsequent vintage issuance, suggesting that the strength of these relationships diminished with time. However, the correlation coefficients vary across vintages, indicating that these were not homogeneous assets and should be treated as separate distinct securities. Figure 2 plots the time series of ABX returns for each vintage over the sample period.

The effect of the crisis on ABX returns is evident from Fig. 2. Returns in all ratings tranches are relatively stable until mid-2007, after which they all became extremely volatile as the subprime crisis hit markets.

Table 2 ABX correlation coefficients across vintage

Correlations	ABX 061	ABX 062	ABX 071	ABX 072
$\rho_{AAA, AA}$	0.83	0.60	0.57	0.60
$\rho_{AAA, A}$	0.49	0.40	0.30	0.40
$\rho_{AAA, BBB}$	0.38	0.22	0.26	0.29
$\rho_{AAA, BBB-}$	0.39	0.19	0.28	0.24
$\rho_{AA, A}$	0.59	0.64	0.55	0.65
$\rho_{AA, BBB}$	0.41	0.44	0.41	0.51
$\rho_{AA, BBB-}$	0.43	0.40	0.40	0.45
ρ_A, BBB	0.65	0.58	0.53	0.48
$\rho_A, BBB-$	0.60	0.51	0.46	0.46
$\rho_{BBB, BBB-}$	0.84	0.74	0.83	0.84

A number of macroeconomic variables are included as explanatory variables in the analysis. Each of these variables provides a proxy for a different risk factor that could affect the ABX and has been used in related literature to date, such as Fender and Scheicher (2008), Murphy and Murphy (2010) and Dungey et al. (2008). Log returns of the Dow Jones Equity Real Estate Investment Trust Index (REIT) provide a proxy for U.S. house prices, seen by many as the driver of the financial crisis. In the absence of a high frequency property price index we follow Dungey et al. (2008) in using this as an indicator of the U.S. real estate sector. The Chicago Board Options Exchange Market Volatility Index (VIX) provides a measure of volatility. The LIBOR-OIS spread, considered to be a measure of strength of the banking system, is included as a proxy for credit risk, as described by McAndrews et al. (2008). The OIS-Tbill spread provides a proxy for liquidity risk, as explained by Eichengreen et al. (2012). The VIX, LIBOR-OIS spread and OIS-Tbill spread differenced are also analyzed, in order to examine if changes in these variables could have an effect on the ABX. Summary statistics for the macroeconomic variables are reported in Table 3.

There is a large difference in magnitude between the house price proxy (REIT) and the other variables due to the fact that the REIT data are reported in log returns while the other variables are reported in levels. Relatively high standard deviations indicate the high volatility of these variables during the sample period, which is reinforced by the large difference between the minimum and the maximum values. High levels of excess kurtosis indicate that normality is rejected in all cases. Unsurprisingly, the house price proxy log returns experience both a negative mean and negative skewness while the means of the other risk proxies are all positive. The differenced VIX and LIBOR-OIS spread both experience negative means, indicating that changes in the VIX were negative over the whole sample period and the LIBOR-OIS spread was narrowing. Changes in the OIS-Tbill spread are mean positive, indicating that this spread was widening, perhaps as investors turned to safer assets. All macroeconomic variables are graphed for the full sample period in Fig. 3, which clearly show the effect that the crisis had on these variables.

Fig. 2 ABX Indexes log returns. Source: Bloomberg

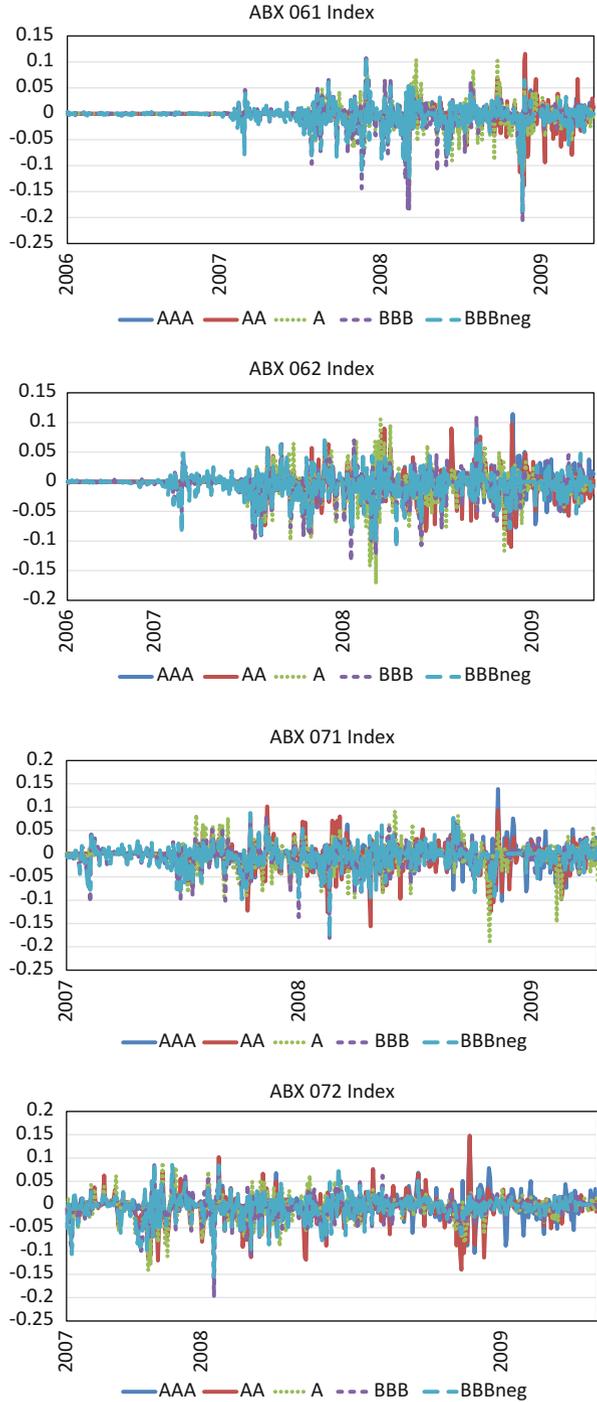


Table 3 Macroeconomic variable summary statistics

Series	Mean	Std error	Minimum	Maximum
USRealEstate	-0.0002	0.033	-0.2148	0.1681
VIX	85.53	47.04	35.60	291.1
LIBOR-OIS	114.1	169.8	6.336	1215
OIS-TBILL	140.1	138.4	-30.06	891.0
δ VIX	0.020	8.225	-62.50	59.54
δ LIBOR-OIS	0.012	20.96	-159.1	181.5
δ OIS-TBILL	-0.144	43.07	-397.6	343.1

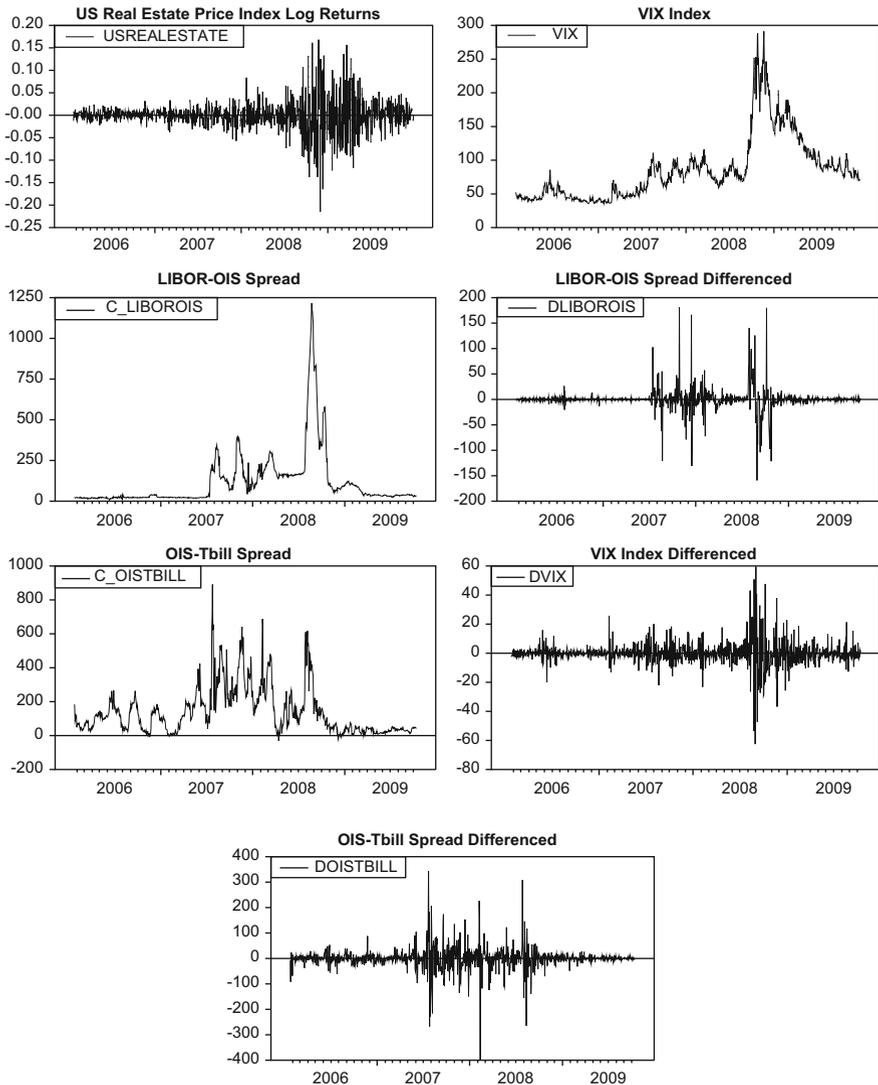


Fig. 3 Macroeconomic variables. Source: Bloomberg

For example, we observe jumps in the VIX and the two spreads in mid-2008, indicating an increase in volatility, credit risk and liquidity risk at this time.

5 Econometric Analyses

5.1 OLS Regression Analysis 1

We first perform OLS regression analysis on the ABX returns and the macroeconomic variables to establish correlation. The two regression equations employed are:

$$ABX_{i,t} = \alpha + \beta_1 REIT_t + \beta_2 VIX_t + \beta_3 LIBOROIS_t + \beta_4 OISTBILL_t + \varepsilon_t; \quad (1)$$

and

$$ABX_{i,t} = \alpha + \beta_1 \delta REIT_t + \beta_2 \delta VIX_t + \beta_3 \delta LIBOROIS_t + \beta_4 \delta OISTBILL_t + \varepsilon_t, \quad (2)$$

in which $ABX_{i,t}$ denotes ABX index daily log returns, $REIT_t$ denotes U.S. real estate investment trust daily log returns, VIX_t denotes daily VIX volatility index levels, $LIBOROIS_t$ denotes daily LIBOR-OIS spread levels and $OISTBILL_t$ denotes daily OIS-Tbill spread levels. In Eq. (2) δ denotes that the indicated variable is differenced.

Table 4 reports results for Eq. (1).

The house price proxy is significant in almost all cases, suggesting that this variable was a major driver of variation in ABX returns over the sample period. In the ABX 07-1 and 07-2 vintages house prices are the only significant variable, although this is mostly in the case of the higher-rated assets. This is probably due to the fact that the two lower-rated assets in the two riskiest vintages would have experienced very low trading volumes once the crisis hit and so may have been subject to “stale” prices. It is also possible that these lower-rated assets may have been influenced by something other than house prices. The results suggest that the higher-rated tranches in the later vintages were most sensitive to house price changes over the sample period, which is not surprising as the mortgages underlying these vintages were issued during the crisis period so would have been of lower quality and among the first to enter negative equity.

In order to conserve space the results for Eq. (2) are not reported but full results are available upon request. The results for Eq. (2) again show house prices to be the main driver of variation in ABX returns, with other variables largely insignificant. However, as discussed above, related literature, such as Dungey et al. (2008) and Fender and Scheicher (2008), suggest that other factors also became important as the crisis evolved. Therefore, in order to delve further into these securities, and specifically into the risk underlying them, principal component analysis (PCA) is

Table 4 OLS regression results 1

Vintage	Asset	Constant	USReal Estate	VIX	LIBOR-OIS	OIST-BILL	R ²
ABX 061	AAA	5.12e-04 (0.64)	0.07 ^{**} (8.26)	-1.27e-05 (-1.51)	1.08e-06 (0.41)	1.75e-06 (0.70)	0.07
	AA	1.42e-03 (0.89)	0.12 ^{**} (6.58)	-3.56e-05 ^{**} (-2.02)	-6.00e-06 (-1.09)	7.75e-06 (1.49)	0.06
	A	-1.45e-03 (-0.80)	0.10 ^{**} (4.90)	-2.30e-05 (-1.14)	-7.47e-06 (-1.19)	1.39e-05 ^{**} (2.34)	0.04
	BBB	-6.89e-04 (-0.37)	0.06 ^{**} (2.94)	-3.54e-05 [*] (-1.70)	4.18e-06 (0.64)	1.85e-07 (0.03)	0.01
	BBB-	1.67e-05 (0.009)	0.06 ^{**} (3.26)	-3.65e-05 [*] (-1.90)	5.31e-06 (0.89)	-4.42e-06 (-0.78)	0.02
	AAA	4.76e-04 (0.31)	0.12 ^{**} (7.44)	-2.10e-05 (1.29)	-2.45e-06 (-0.49)	5.69e-06 (1.21)	0.07
ABX 062	AA	-2.04e-03 (0.99)	0.09 ^{**} (4.40)	-1.79e-03 (-0.82)	-9.10e-06 (-1.38)	1.52e-05 ^{**} (2.40)	0.04
	A	-2.32e-03 (-1.00)	0.075 ^{**} (3.12)	-2.05e-05 (-0.84)	2.08e-06 (0.28)	2.21e-06 (0.31)	0.01
	BBB	-1.61e-03 (-0.71)	0.07 (0.02)	4.67e-06 (0.20)	-6.56e-06 (0.91)	-1.06e-05 (-1.53)	0.02
	BBB-	-1.31e-03 (-0.59)	0.04 [*] (1.83)	2.93e-06 (0.12)	-5.96e-05 (-0.84)	-1.29e-05 [*] (-1.90)	0.02
	AAA	-3.30e-04 (-0.45)	0.14 ^{**} (7.17)	-1.02e-05 (-0.46)	-4.37e-06 (-0.69)	-4.37e-06 (0.64)	0.07
	AA	-2.92e-03 (-1.01)	0.10 ^{**} (3.98)	2.19e-05 (-0.78)	-5.98e-06 (0.75)	1.10e-05 (1.42)	0.03
ABX 071	A	-2.35e-03 (-0.75)	0.05 [*] (1.73)	-1.86e-05 (-0.61)	-1.14e-08 (-0.01)	-2.54e-06 (-0.30)	0.01
	BBB	-2.41e-03 (-0.83)	0.07 (0.15)	4.38e-06 (0.15)	-2.73e-06 (-0.34)	-1.40e-05 [*] (-1.79)	0.02
	BBB-	-2.86e-03 (-1.04)	0.05 ^{**} (2.18)	8.54e-06 (0.32)	-4.52e-06 (-0.60)	-1.20e-05 [*] (-1.62)	0.01
	AAA	-1.24e-03 (-0.41)	0.14 ^{**} (6.36)	-2.07e-06 (-0.08)	-5.68e-06 (-0.81)	4.95e-06 (0.69)	0.07
	AA	-4.12e-03 (-1.09)	0.11 ^{**} (4.13)	-1.12e-05 (-0.33)	-2.60e-06 (-0.30)	6.47e-06 (0.72)	0.03
	A	-1.37e-03 (-0.38)	0.08 ^{**} (3.35)	-2.80e-05 (-0.88)	3.84e-06 (0.47)	-6.38e-06 (-0.76)	0.02
ABX 072	BBB	-6.91e-03 ^{**} (-2.03)	0.03 (1.21)	2.45e-05 (0.80)	-6.05e-06 (-0.77)	3.44e-06 (0.43)	0.003
	BBB-	-5.81e-03 [*] (-1.69)	0.03 (1.11)	1.80e-05 (0.59)	-3.20e-06 (-0.40)	-2.76e-07 (0.03)	0.0003

Notes: The above table reports results for Eq. (1) in which ABX returns are dependent variables and the macroeconomic variables are explanatory. T-statistics are reported in parenthesis. The superscripts ***, **, and * denotes significance at the 1, 5 and 10% levels, respectively

performed on the ABX returns in an attempt to extract the common factors underlying the variation in the data.

5.2 Principal Component Analysis (PCA)

OLS regression analysis on a noisy data set such as the ABX may lead to imprecise results, as the analysis could potentially pick up the noise in the data, (Granger and Newbold 1974). It is therefore useful to reduce the dimensionality of the data, while maintaining as much of the variation as possible. Principal component analysis (PCA) achieves this without losing any information from the data. Similar to factor analysis, PCA is designed to uncover a small number of factors that describe most of the variation in a large number of correlated variables. It focuses on variances and reduces data dimensionality by performing a covariance analysis between factors. It is a useful descriptive instrument used to reveal unidentified trends in data sets consisting of a large number of interrelated variables, while retaining much of the variation present. This is accomplished by transforming the principal components, which are uncorrelated and ordered so that the first few contain most of the variation present, to a new set of variables. Mathematically PCA is an orthogonal linear transformation, meaning that the principal components obtained are unrelated to each other. The data are transformed to a new coordinate system such that the greatest variance lies on the first coordinate, and so is the first principal component. The second largest variance lies on the second coordinate and is the second principal component, and so on.

PCA is a statistical procedure that provides an alternative way to visualize the data and so it does not tell us what the principal components actually are or what they are a result of, just the extent to which they contribute to the variation in the data.

5.3 PCA Results According to Vintage

In order to analyze the individual principal components, the average relative importance of each component in each vintage has been calculated and is graphed in Fig. 4.

The first principal component, the main contributing factor to the variation in the data, accounts for over 70% of variation in ABX returns in each vintage. PCA is successful in reducing the dimensionality of the problem with the first three components capturing approximately 90% of all variation in each vintage. However, the first principal component actually falls in importance between the first and last vintage. This suggests that the components driving the variation in the ABX data varied across vintages which could be due to the fact that each subsequent vintage was issued in an increasingly volatile time period, during which these assets

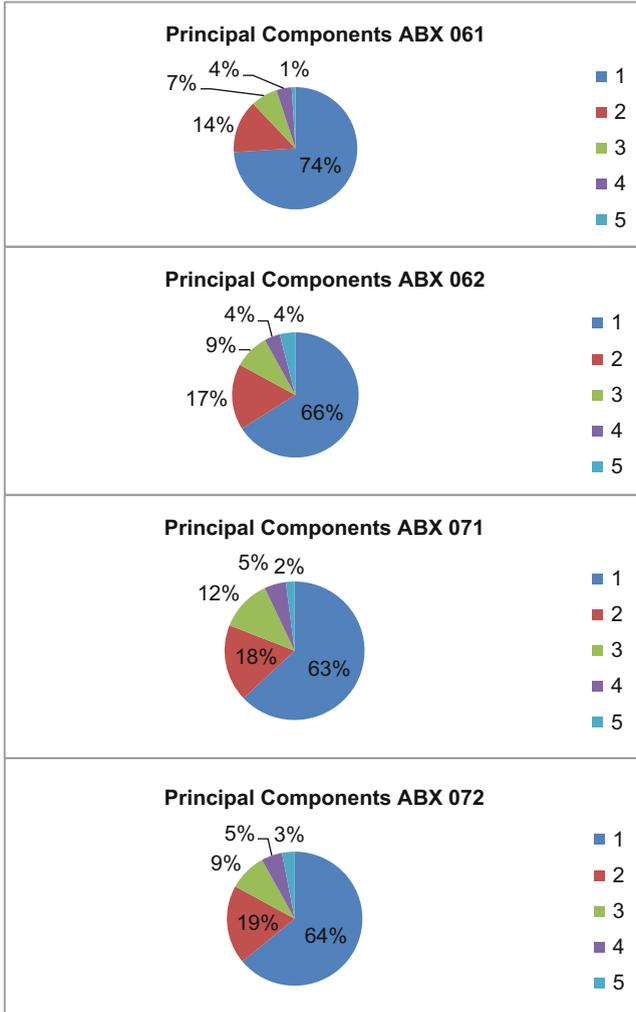


Fig. 4 Principal components relative shares. Source: Authors own calculations. Notes: The numbers in the legend denote the principal component average share, e.g. 1 denotes the average share of the variance that principal component 1 accounts for

were exposed to more risk factors, such as the liquidity crisis in September 2008. It also highlights the fact that these vintages were unique and not simply an extension of the previous issuance, indicating that these assets were heterogeneous in nature and should be treated as separate entities, a finding consistent with Dungey et al. (2008). The initial chief driving factor is not as important in the later vintages and all four other components contribute more to the variation in the data in subsequent issuances. Possible reasons for this could be that during this time investors were rapidly losing confidence in these assets upon realizing that they were riskier than

they had first appeared and were beginning to reassess them. What followed was a period of accelerated “selling off” of these products during which investors not only exited the lower-rated tranches but the entire mortgage-backed securities market. Retrenchment and re-structuring of the banking sector during this volatile period could account for the increasing importance of the other principal components here. During this time it is possible that house prices became less important than liquidity and counterparty risk as institutions were rapidly losing trust in each other and were becoming increasingly unwilling to engage in interbank lending. As stated, the first three components capture most of the commonality and therefore the remainder of the analysis focuses on these three only as the main driving factors in this market.

As mentioned earlier because each new vintage was issued 6 months following the previous one each data set analyzed has a different starting point. In order to ascertain if this had any effect on the underlying principal components, the analysis has also been carried out with all the data starting at the same point, namely the beginning of the ABX 07-2 vintage in July 2007. The results did not change considerably. This suggests that this phase, the crisis period, contributed most variation to these assets.

5.4 OLS Regression Analysis 2

The analysis is re-performed using the three main principal components obtained from each vintage as the dependent variables instead of the noisy ABX returns in an attempt to obtain clearer results relative to the initial regressions performed. The two regression equations employed are:

$$PC_{i,t} = \alpha + \beta_1 REIT_t + \beta_2 VIX_t + \beta_3 LIBOROIS_t + \beta_4 OISTBILL_t + \varepsilon_t; \quad (3)$$

And

$$PC_{i,t} = \alpha + \beta_1 REIT_t + \beta_2 VIX_t + \beta_3 LIBOROIS_t + \beta_4 OISTBILL_t + \varepsilon_t \quad (4)$$

in which $PC_{i,t}$ denotes the principal component employed and the explanatory variables remain as above. Table 5 reports results for Eq. (3).

House prices are still significant throughout, again indicating that they play a role in explaining the variation in the data. However, we now observe more factors coming into play relative to the initial regressions performed, such as volatility, liquidity and credit risk, suggesting that these factors also had an effect on ABX returns over the sample period. This corresponds with investor concerns during the crisis switching from the downturn in the housing market to the credit worthiness of financial institutions and the declining availability of credit in the banking sector. We again observe differences between vintages. For example, the strongest relationships between the principal components and the macroeconomic variables occur in the first two vintages, indicating that these earlier issuances reacted to

Table 5 OLS regression results 2

	Principal components	Constant	USReal Estate	VIX	LIBOROIS	OISTBILL	R ²
ABX 061	PC ₁	-4.63e-04 (-0.15)	0.17** (5.19)	-6.53e-05* (-1.97)	-9.68e-07 (-0.09)	8.07e-06 (0.83)	0.04
	PC ₂	-1.03e-03 (-0.69)	-0.08** (-4.59)	4.61e-06 (0.28)	9.86e-06* (1.91)	-1.14e-05** (-2.34)	0.03
	PC ₃	1.84e-03 (1.72)*	0.01 (1.29)	-1.53e-05 (-1.28)	5.60e-06 (1.51)	-8.52e-06** (-2.43)	0.01
ABX 062	PC ₁	-0.03 (-0.93)	0.16** (4.20)	-0.00002 (-0.48)	-0.000009 (-0.80)	-0.000003 (-0.28)	0.03
	PC ₂	1.46e-04 (0.07)	0.07 (3.60)	-2.84e-05 (-1.33)	4.04e-07 (0.06)	2.23e-05** (3.61)	0.04
	PC ₃	8.89e-04 (0.64)	0.05** (3.24)	-7.65e-06 (0.09)	-7.65e-06 (0.09)	9.44e-07 (0.22)	0.02
ABX 071	PC ₁	-0.005 (-1.05)	0.17** (3.93)	-0.00002 (-0.34)	-0.000007 (-0.55)	-0.000008 (-0.62)	0.03
	PC ₂	-3.23e-04 (-0.12)	-0.07** (-3.08)	2.61e-05 (0.99)	1.89e-06 (0.25)	-1.99e-05** (-2.74)	0.03
	PC ₃	-5.08e-06 (-0.002)	-0.08** (-4.02)	-8.24e-06 (-0.38)	4.86e-06 (0.80)	-9.06e-07 (-0.15)	0.02
ABX 072	PC ₁	-0.089 (-1.49)	0.17** (3.93)	-0.000001 (-0.01)	-0.000005 (-0.39)	0.000003 (0.24)	0.03
	PC ₂	3.99e-03 (1.19)	0.10 (4.38)	-3.32e-05 (-1.11)	1.68e-06 (0.21)	2.23e-06 (0.28)	0.04
	PC ₃	-2.00e-03 (-0.80)	0.04* (1.99)	2.66e-05 (1.19)	-8.04e-06 (-1.39)	8.84e-06 (1.50)	0.01

Notes: The above table reports results for Eq. (3) in which principal components are dependent variables and the macroeconomic variables are explanatory. T-statistics are reported in parenthesis. The superscripts ***, **, and * denotes significance at the 1, 5 and 10% levels, respectively

the risk factors examined to a greater extent than the later issued vintages. This is interesting as these two vintages, and particularly the January 2006 issuance, would have been perceived to be the safest as they were issued prior to the crisis. However, it is possible that the realization by investors that this was not the case led to an increased sensitivity to risk. These vintages issued at the tail end of the boom period would have been in higher demand than those issued later during the crisis phase and so when the crisis hit it is possible that there were in fact more investors in these assets than the subsequent issuances, who then tried to offload these securities. This again reinforces the idea that there were marked differences between vintages and that these assets should be treated as heterogeneous. Also, it again suggests that the risk factors driving ABX returns varied as time went on, changing from predominantly house prices to liquidity, volatility and credit risk. This change highlights the crisis' move from the housing market into the broader credit sector. Fender and Scheicher (2008) also find support for the relevance of risk appetite and liquidity

Table 6 Macroeconomic variable correlation coefficients

$\rho_{\text{USRealEstate, VIX}}$	0.10	$\rho_{\text{VIX, } \delta\text{OISTBILL}}$	0.01
$\rho_{\text{USRealEstate, } \delta\text{VIX}}$	-0.62	$\rho_{\delta\text{VIX, LIBOR OIS}}$	0.06
$\rho_{\text{USRealEstate, LIBOROIS}}$	-0.07	$\rho_{\delta\text{VIX, } \delta\text{LIBOROIS}}$	0.19
$\rho_{\text{USRealEstate, } \delta\text{LIBOROIS}}$	-0.03	$\rho_{\delta\text{VIX, OISTBILL}}$	0.03
$\rho_{\text{USRealEstate, OISTBILL}}$	-0.01	$\rho_{\Delta\text{vix, } \delta\text{OISTBILL}}$	0.11
$\rho_{\text{USRealEstate, } \delta\text{OISTBILL}}$	-0.05	$\rho_{\text{LIBOR OIS, } \delta\text{LIBOROIS}}$	0.06
$\rho_{\text{VIX, } \delta\text{ VIX}}$	0.09	$\rho_{\text{LIBOROIS, OISTBILL}}$	0.46
$\rho_{\text{VIX, LIBOROIS}}$	0.64	$\rho_{\text{LIBOROIS, } \delta\text{OISTBILL}}$	-0.04
$\rho_{\text{VIX, } \delta\text{LIBOROIS}}$	-0.05	$\rho_{\text{OISTBILL, } \delta\text{ OISTBILL}}$	0.16
$\rho_{\text{VIX, OISTBILL}}$	0.04		

risk for the vintages. In order to conserve space results for Eq. (4) are not reported but these correspond to those obtained for Eq. (3).⁴

From the results it is clear that, although there is some significance, the coefficients themselves are quite small and the R^2 's range only from 0.008 to 0.04. One possible reason for the small coefficient estimates could be that the independent variables are highly correlated with each other. In order to investigate this further the independent variables correlation coefficients are reported in Table 6.

The VIX is highly correlated with both the LIBOR-OIS spread and the U.S. real estate price index. This relatively high correlation may have impacted the results reported.

Another possible problem with OLS regression analysis is that, by imposing a constant coefficient, it does not capture the time varying property of the variables, (Wooldridge 2003). One possible method to overcome this problem is to employ univariate rolling regression analysis.

5.5 Rolling Regression Analysis

Rolling regression analysis calculates parameter estimates over a rolling or “moving” window of a fixed size throughout the sample. Due to the short data range in our analysis a relatively small window of 50 observations is chosen.⁵

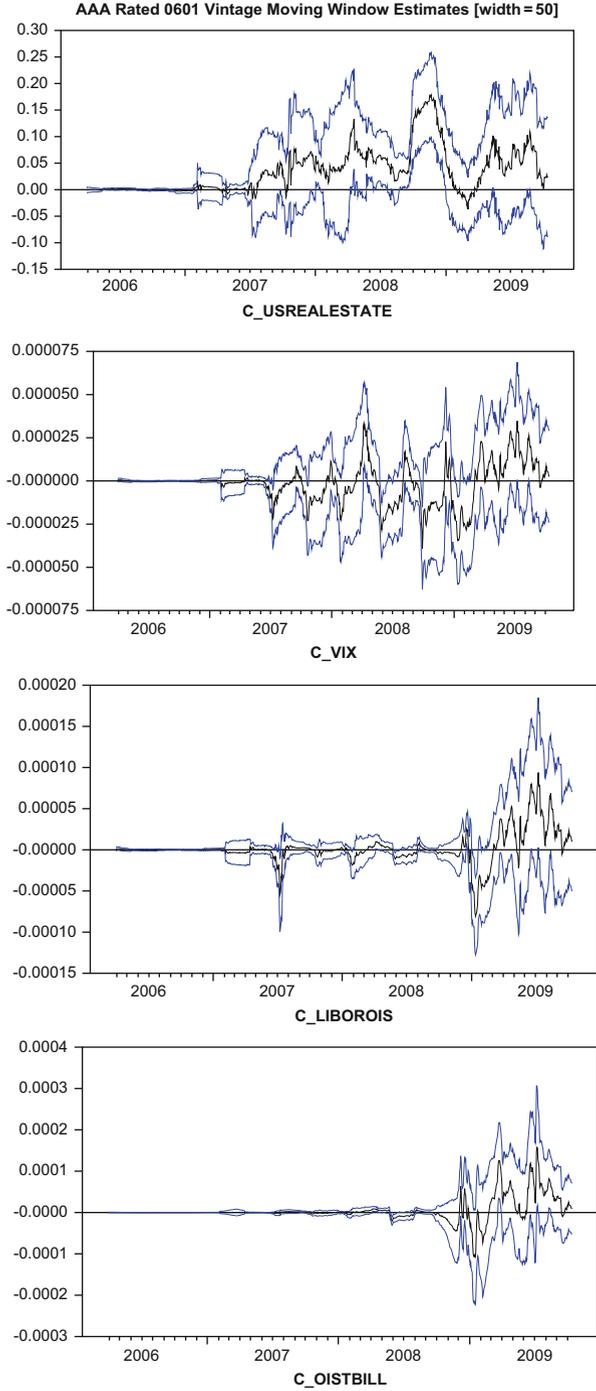
We perform rolling regression analysis using the first three principal components of each ABX index as the dependent variables and the above explanatory variables. Regression equations follow those outlined in Eqs. (3) and (4). However, to conserve space we only present graphical results for the first vintage and the first principal component in Fig. 5. Since the graphs for later vintages are similar, we refer to any differences without including the additional graphs.⁶

⁴All results are available upon request.

⁵In order to confirm the robustness of the results larger window sizes, such as 100, were also employed and the results did not change qualitatively.

⁶All results available upon request.

Fig. 5 Rolling regression results 1. Source: Authors own calculations



The solid lines in the graphs presented in Fig. 5 are point estimates while the dashed lines are confidence bands. From these results it is clear that all risk proxies exhibit considerable time variation once the crisis period kicks in. In the time period before it, between 2006 and 2007, we see no variation due to the lack of variability in the ABX returns and, it follows, the principal components during the relatively tranquil period. The proxies for house prices and volatility begin to exert an influence in 2007, corresponding to the beginning of the fall of the housing market, (Di Martino and Duca 2007). We also see that the proxies for liquidity and counterparty risk come into play much later, around mid-2008. The liquidity crisis occurred between September 20th and October 12th 2008, (Sapir 2009), with events such as the acquisition of Merrill Lynch by Bank of America (September 14th), the fall of Lehman Brothers (September 15th) and the \$85 billion bailout of AIG (September 16th), which can be viewed as critical points in the crisis. From this we can conclude that the risk factors underlying the subprime mortgage market changed over time as the crisis wore on, and these changes correspond to the evolution of the crisis from a purely real estate problem to a liquidity problem that effected the entire banking system. We see a shift from house prices and volatility having an influence to liquidity and counterparty risk becoming important. This suggests that concerns about liquidity and the strength of the banking system became at least as important as concerns' regarding the housing market, as Brunnermeier (2009) also argues.

6 Analysis According to Ratings Tranche

As we have seen there are considerable differences in the behavior of the assets analyzed across vintages. The next step is to ascertain if we can identify differences in the assets across ratings classes. Therefore the analysis is performed according to the five ratings tranches in an effort to examine if the different ratings classes exhibited various sensitivities to risk factors.⁷ Table 7 reports summary statistics for the ABX assets according to ratings class.

Table 7 indicates that these assets were highly volatile during the sample period, with normality rejected in all cases. Mean returns are negative for every asset, and in almost every instance are monotonically related to vintage, again indicating the higher volatility of these issuances. Table 8 reports correlation coefficients between each ratings tranche and equivalent assets in the other vintages.

⁷Note that all data begin at the issuance date of the final vintage, July 19 2007, in this analysis.

Table 7 ABX summary statistics according to asset rating

Vintage	Mean	Std. Error	Variance	Skewness	Kurtosis	Jarque-Bera	Min	Max
AAA rated asset								
ABX 061	-0.0003	0.0116	0.0001	-0.6285	10.48	2799.18	-0.08	0.08
ABX 062	-0.0013	0.0200	0.0004	-0.2806	4.030	415.971	-0.08	0.11
ABX 071	-0.0017	0.0232	0.0005	-0.0229	5.056	642.239	-0.11	0.14
ABX 072	-0.0017	0.0228	0.0005	0.05700	6.019	910.070	-0.10	0.14
AA rated asset								
ABX 061	-0.0020	0.0241	0.0006	-0.1330	7.270	1339.41	-0.14	0.14
ABX 062	-0.0036	0.0263	0.0007	-0.1564	3.671	341.120	-0.11	0.13
ABX 071	-0.0051	0.0286	0.0008	-0.7202	3.879	430.125	-0.16	0.10
ABX 072	-0.0049	0.0279	0.0008	0.87743	5.764	912.622	-0.14	0.15
A rated asset								
ABX 061	-0.0036	0.0270	0.0007	-0.1956	3.681	344.210	-0.13	0.10
ABX 062	-0.0047	0.0290	0.0008	-0.7942	4.382	545.828	-0.17	0.10
ABX 071	-0.0050	0.0307	0.0009	-0.7991	4.105	487.601	-0.19	0.09
ABX 072	-0.0048	0.0261	0.0007	-0.6280	3.500	347.472	-0.14	0.09
BBB rated asset								
ABX 061	-0.0048	0.0273	0.0007	-2.2431	13.64	5181.03	-0.21	0.11
ABX 062	-0.0041	0.0275	0.0008	-0.0847	5.494	759.226	-0.13	0.18
ABX 071	-0.0043	0.0271	0.0007	-0.7815	5.461	810.705	-0.18	0.10
ABX 072	-0.0047	0.0248	0.0006	-1.1982	7.994	1749.81	-0.20	0.09
BBB- rated asset								
ABX 061	-0.0043	0.0246	0.0006	-1.3696	8.815	2140.85	-0.19	0.11
ABX 062	-0.0039	0.0265	0.0007	0.0755	2.938	217.449	-0.11	0.12
ABX 071	-0.0041	0.0256	0.0006	-0.8406	5.412	806.944	-0.18	0.09
ABX 072	-0.0044	0.0250	0.0006	-0.8637	4.816	657.741	-0.16	0.09

There is a weakening degree of co-movement as asset rating declines. This indicates that the higher-rated assets had more in common than the lower tranches. The relative importance of the principal components obtained for each ratings class is presented in Fig. 6.

Figure 6 highlights differences between the assets of each vintage. We see that the AAA-rated tranche contains most commonality of all ratings classes with really only one factor contributing to the variation of this asset. As this was perceived to be the safest asset on sale it may be the case that there is less noise trading in this rating class. While it is clear that there is much commonality in the AAA tranche the BBB- tranche shows the most variation between principal components, implying that there were more risk factors affecting it that were not affecting the higher tranches.

Fender and Scheicher (2008) also find differences between the lower- and higher-ratings, particularly that the higher-rated assets react more to the declining

Table 8 ABX correlation coefficients between tranches

Correlations	Coefficient	Correlations	Coefficient
$\rho_{(AAA0601,AAA0602)}$	0.87	$\rho_{(A0602,A0701)}$	0.59
$\rho_{(AAA0601,AAA0701)}$	0.81	$\rho_{(A0602,A0702)}$	0.60
$\rho_{(AAA0601,AAA0702)}$	0.81	$\rho_{(A0701,A0702)}$	0.57
$\rho_{(AAA0602,AAA0701)}$	0.89	$\rho_{(BBB0601,BBB0602)}$	0.51
$\rho_{(AAA0602,AAA0702)}$	0.87	$\rho_{(BBB0601,BBB0701)}$	0.47
$\rho_{(AAA0701,AAA0702)}$	0.93	$\rho_{(BBB0601,BBB0702)}$	0.49
$\rho_{(AA0601,AA0602)}$	0.61	$\rho_{(BBB0602,BBB0701)}$	0.58
$\rho_{(AA0601,AA0701)}$	0.51	$\rho_{(BBB0602,BBB0702)}$	0.51
$\rho_{(AA0601,AA0702)}$	0.51	$\rho_{(BBB0701,BBB0702)}$	0.50
$\rho_{(AA0602,AA0701)}$	0.52	$\rho_{(BBB-0601,BBB-0602)}$	0.49
$\rho_{(AA0602,AA0702)}$	0.68	$\rho_{(BBB-0601,BBB-0701)}$	0.51
$\rho_{(AA0701,AA0702)}$	0.79	$\rho_{(BBB-0601,BBB-0702)}$	0.45
$\rho_{(A0601,A0602)}$	0.64	$\rho_{(BBB-0602,BBB-0701)}$	0.54
$\rho_{(A0601,A0701)}$	0.49	$\rho_{(BBB-0602,BBB-0702)}$	0.44
$\rho_{(A0601,A0702)}$	0.56	$\rho_{(BBB-0701,BBB-0702)}$	0.49

financial market environment while the lower tranches are more sensitive to fundamental factors.

These results imply that the risk factors underlying the ratings class of asset changed more dramatically than those underlying the vintages, suggesting that the rating of the asset has a large bearing on how it behaves in crisis times. As it is clear that the AAA-rated tranche holds the most commonality OLS regression and rolling regression analyses are performed on this asset over the four vintages to ascertain whether or not the macroeconomic variables employed had an effect on them. Table 9 reports results for Eq. (3).

The only significant effect comes from the house price proxy for the first principal component, reinforcing the idea that real estate market movements were the driving factor in this tranche and indicating that, for the highest-rated assets on sale, only house prices had a significant influence. Again, however, the coefficients and R^2 's are very small and so rolling regression analysis is employed as before. As AAA-rated assets comprised most of the CDO structure and the main principal component accounts for 90% of the variation only results for the principal component underlying this asset are reported as this indicates that this was the dominant driving force in the returns.⁸

To conserve space the results are not reported here.⁹ However they do not differ significantly from the previous results and display a similar pattern to them.

Firstly, all coefficients display time variation. Secondly, we see that house prices and volatility have an effect throughout the time period and the other proxies have

⁸To conserve space results for Eq. (4) are not reported here but correspond to those for Eq. (3). All results are available upon request.

⁹All results available upon request.

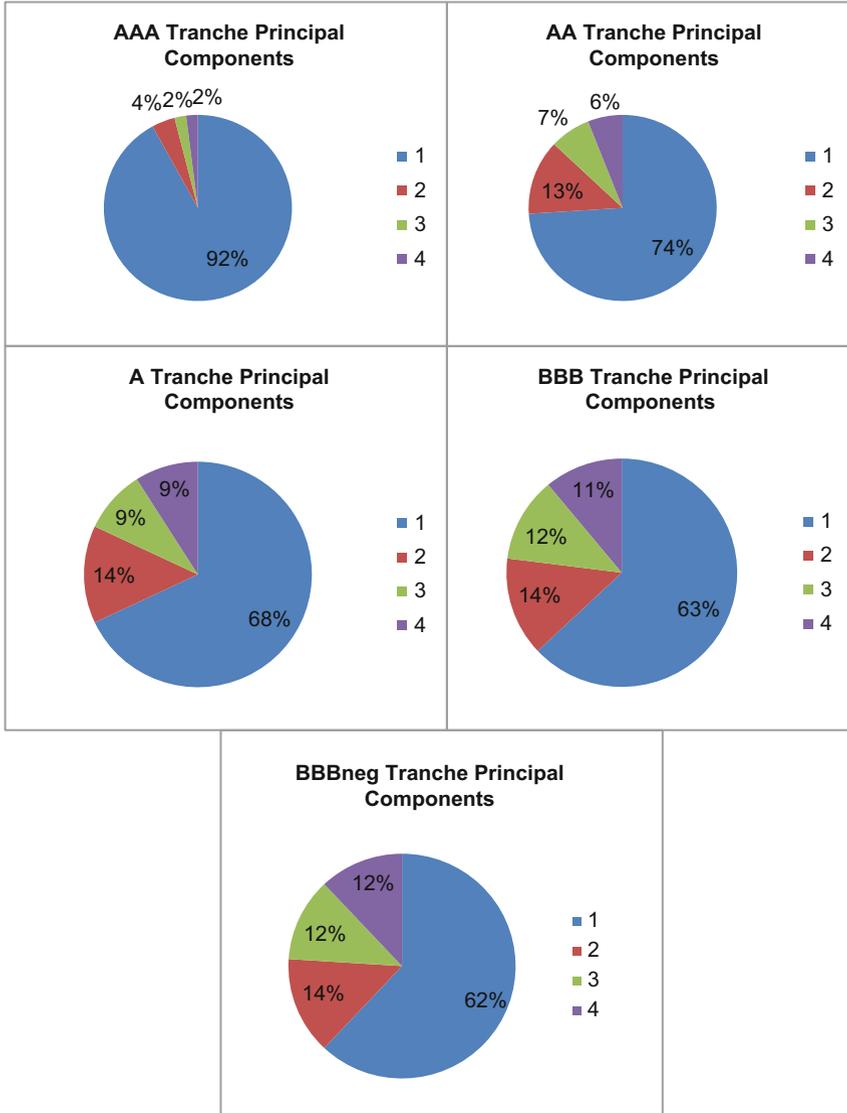


Fig. 6 Principal components by rating relative shares. Source: Authors own calculations. Notes: The numbers in the legend denote the principal component average share, e.g. 1 denotes the average share of the variance that principal component 1 accounts for

very little influence until late-2008, with the onset of the liquidity crisis. This suggests that, for these highest-rated assets, house prices are significant in their returns throughout but, as investor concerns regarding liquidity and counterparty risk grew, these other factors began to have a significant effect on these products.

Table 9 OLS regression results 3

Explanatory variable	Principal component			
	Pone	Ptwo	Pthree	Pfour
Constant	-0.0004 (-0.09)	-1.8811e-03* (-1.65)	1.1356e-04 (0.14)	-6.2802e-04 (-0.92)
U.S.RealEst	0.2462** (6.77)	-4.2329e-03 (-0.51)	-5.9697e-04 (-0.10)	-7.1415e-03 (-1.46)
VIX	-0.00002 (-0.48)	2.0582e-05** (2.02)	-7.3336e-07 (-0.10)	4.2988e-06 (0.71)
LIBOR-OIS	-0.000007 (-0.60)	-2.8822e-06 (-1.09)	4.2461e-07 (0.22)	-2.4457e-06 (-1.55)
OIS-TBILL	-0.000009 (0.75)	-1.0579e-06 (-0.39)	-7.6233e-08 (-0.04)	1.7071e-06 (1.06)
R ²	0.08	0.01	0.0001	0.008

Notes: The above table reports results for Eq. (3) in which principal components are dependent variables and the macroeconomic variables are explanatory. T-statistics are reported in parenthesis. The superscripts ***, **, and * denotes significance at the 1, 5 and 10% levels, respectively

7 Conclusion

This paper examines the U.S. subprime mortgage-backed securities market by using the closest proxy available for it, the ABX indexes. OLS regression analysis, principal component analysis (PCA) and rolling regression analysis are performed on the ABX in an attempt to examine this complex market, and to better understand the risk underlying it. The overall results suggest that different risk factors came into play at different times over the course of the crisis of 2007–2009. Analysis according to vintage suggests that proxies for U.S. house prices and volatility were more significant during 2007, corresponding to the beginning of the deflation of the housing bubble.

As the crisis wore on, proxies for liquidity and credit risk change from exhibiting very little significance to playing a more important role, consistent with the onset of the liquidity crisis in September 2008. Analysis according to ratings class suggests marked differences between ratings classes, with the highest-rated tranche containing most of the commonality, a finding in line with Dungey et al. (2008). Rolling regression analysis shows house prices and volatility have a consistent influence throughout the period analyzed, with liquidity and counterparty risk again coming into play during the 2008 credit crisis. Brunnermeier (2009) also highlights the growing importance of liquidity, credit risk and counterparty risk during the crisis.

These results indicate that concerns about house prices and volatility were compounded by concerns about liquidity and credit risk, a trend consistent with the evolution of the crisis. They also suggest that the lower-rated tranches were exposed to more risk factors than the higher-rated assets and that tranche effects supersede vintage effects. Fender and Scheicher (2008) highlight differences

between ABX ratings classes, particularly that the higher ratings were affected by different risk factors than the lower ratings.

Acknowledgements The work presented in this paper reflects the views of the author and does not necessarily reflect those of the Central Bank of Ireland or the European System of Central Banks. Many thanks to Dr. Thomas Flavin of Maynooth University for comments.

Appendix: The ABX.HE Indexes

Credit derivatives markets were experiencing rapid growth in the mid-2000s (Hull 2009). The notional amount of credit default swaps (CDS) grew almost 48% in the first 6 months of 2005 alone, from \$8.42 trillion to \$12.43 trillion. The annual growth rate for credit derivatives was 128%, relative to \$5.44 trillion in mid-2004.¹⁰

However, unlike equity markets with the high profile stock exchanges at their disposal this expanding market had nothing comparable, due to the fact that the market itself was over-the-counter (OTC). The ABX.HE indexes provided standardized indices for the credit market promoting liquidity, credibility and visibility, while also enabling market participants to track CDS spreads. They are produced by the Markit Group and began trading on 19 January 2006.

The name ABX.HE denotes “Asset-Backed Securities Index-Home Equity” and each index represents a standardized basket of home equity asset-backed reference obligations, basically a basket of synthetic collateralized debt obligations (CDOs) underlying subprime mortgages. Each index is a series of equally weighted, static portfolios of CDS and so in reality trades based on the ABX are trades of CDSs.

The ABX trades on the basis of the index value. The indexes have been used as a key measurement of subprime mortgage market conditions as well as to value CDOs. However, considering that there are actually approximately 15 tranches in each mortgage-backed security and the ABX only take into account five of these (AAA, AA, A, BBB, BBB-) they cannot be seen as perfect representatives of the market. Nonetheless they are the closest proxy available (Finger 2007).

There were only four ABX.HE Indices issued, with the first vintage issued at the beginning of 2006 offering the longest time period. The ABX.HE 2008/1 vintage was postponed due to lack of appropriate collateral time and time again and it looks unlikely that there will be a new issuance.

Each index is based on 20 subprime mortgage backed securities, with the same credit rating, issued over the previous 6-month period and indices are renewed or “rolled” every 6 months. In order to be included in the index each RMBS must meet stringent requirements, such as the deal size must be at least \$500 million, the weighted average FICO score of the creditors backing the securities issued in the

¹⁰Data sourced from International Swaps and Derivatives Association (ISDA), see <http://www.isda.org/statistics/recent.html>.

RMBS transaction may not be greater than 660 and at least four of the required tranches must be registered according to the U.S. Securities Act of 1933.¹¹ Markit ABX Index Rules, see <http://content.markitcdn.com/corporate/Company/Files/DownloadFiles?CMSID=b7a69adc399f48fb83f32fedec1b8703>.

Fender and Scheicher (2009), propose one way to calculate ABX prices as:

$$Price = 100 + Present\ value\ of\ coupons - Present\ value\ of\ writedowns \quad (5)$$

One hundred is the par value of the index. The coupon rate is fixed as a percentage of notional over the life of the index on initiation of a new vintage. It is paid by the protection buyer to the protection seller for insurance against a credit event occurring. The present value of write-downs or losses is variable and is paid from the protection seller to the buyer in the case of a credit event. We can now see that it is vital that the value of the coupons is high enough to cover potential losses. However, as the crisis hit, these were not and when defaults began accumulating write-downs rapidly increased. Protection sellers simply could not afford to cover the losses (Brunnermeier 2009).

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¹¹See Markit ABX Index Rules: <http://content.markitcdn.com/corporate/Company/Files/DownloadFiles?CMSID=b7a69adc399f48fb83f32fedec1b8703>.

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A Comparison of Financial Results Based on Accrual and Cash Accounting Data

Edyta Mioduchowska-Jaroszewicz

Abstract This article aims to investigate the relationship between the indicators commonly used to assess a financial situation based on accrual and cash flow accounting. A company's financial result is distorted in different ways. Cash flows compared to financial results are not subject to manipulation resulting from accounting policies employed in a given business entity. Hence, formulated hypothesis assumes that the assessment of profitability carried out with the use of cash flow indicators reflects the true and reliable image of a company, in contrast to the indicators based on a financial result. The hypothesis about dissimilarity of the assessment of a financial condition has been proven by the analysis of the correlation between the accrual and cash results. The analysis of a financial situation based on cash flows led to a conclusion that a financial situation is more complete, reliable and not affected by balance and tax policy, but there are also differences between the assessment based on financial ratios calculated on the basis of accrual data (the balance sheet and the profit and loss account) and the financial situation of the studied companies based on cash data. The article uses the method of economic analysis, descriptive statistics and correlation analysis.

Keywords Accruals • Cash flow • Return on equity (ROE) • Return on operating assets (RoOA) • Cash productivity of sales (CPS) • Cash productivity of assets (CPA)

1 Introduction

The aim of the article is to verify the research hypothesis concerning the comparison of financial results of companies based on accrual and cash data. The primary source of information in the study of common indicators used for the assessment of a financial situation are standard financial statements, which should be prepared by business entities, i.e. the balance sheet (the statement of financial position) and the profit and loss account (the income statement). Still underrated source of

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information on a financial condition of companies is the cash flow statement, which is drawn up by only big entities and by others only occasionally.

However, as early as in the 1990s, many analysts and researchers noticed the advantages of the indicators based on cash flows. Many financial analysts believe that “the operating cash flow is a better indicator to assess the financial situation than the net income because it is less susceptible to interference from a variety of accounting practices”. A growing number of portfolio managers and analysts says that “cash flows are a more meaningful measure of a company’s value than reported earnings” (Dechow 1994, p. 3).

The cash flow is an important measure of the efficiency of the management and valuation of companies (Rayburn 1986; Dechow et al. 1998; Graham et al. 2005). Nwaeze et al. (2006) believe that cash flows are more important than earnings in evaluating the results of management and determining salaries and bonuses.

Various studies also suggest that analysts and investors—as a result of loss of confidence in accrual data, among others, after the financial crisis of 2007, which began with the fall of Enron—focus more on cash flows, and mainly on those generated from operating activities, considered to be the most important indicator to assess the financial condition of a company. All these statements are based on the assumption that cash flows are a reliable measure and cannot be easily manipulated.

However, contrary to stakeholders’ expectations, managers can manipulate cash flows and mislead their users. Therefore, it can be assumed that shareholders expect cash flows to have certain characteristics of a “super” indicator, which will reflect an actual financial situation of business entities. When such a situation occurs, the share price should go up, consequently improving financial results of an entity. Here appears, so far unexplained, reason to doubt whether, in fact, the financial results are improving, and whether we really deal with this type of a cause and effect chain.

In order to verify the research hypothesis in question and to achieve the aim of the article, the following research stages have been completed:

- Literature studies.
- Collecting annual reports of companies for the period of 2013–2014.
- Selecting the indicators and performing calculations for the studied group of companies.
- Determining correlation between indicators based on accrual data and those based on cash data.
- Testing the significance of the correlation with a Student’s *t*-Test.
- Drawing conclusions.

2 The Nature and Meaning of Cash Flows

Cash flows have become an integral part of modern business management. They are so important that their specificity, monitoring, reporting, analysis and prediction are a subject of many scientific and practical studies as well as legal and environmental deliberations, both in Poland and around the world (Śnieżek and Walińska 2006).

Heath presented his wide-ranging critique of contemporary cash flow statement as an ambiguous product in terms of its role and an unclear and sometimes even misleading cognitive value. Heath (1978) proposed replacing cash flows with three separate statements:

- The statement of basic inflows and outflows (the statement of operating activity),
- The statement of changes in loans and equity financing (the statement of financing activities),
- The statement of changes in long-term assets (the statement of investing activities).

The new statements proposed by Heath (1978) were heavily criticized, but the history shows that at the moment of the publication of *the Statement of Financial Accounting Standards (SFAS)*, and before the introduction of any changes in the cash flow statements, many enterprises had prepared cash flow statements in terms of cash and their equivalents. Regardless of the diversity of opinions on the new dimension of reporting cash flows, Heath's opinions played a very important role in the American business environment of the 1980s. When the agreement on the purpose of the cash flow statements and their basic definitions was reached, the cash basis slowly began to appear in national and international accounting regulations (Śniezek 2008).

In modern literature on financial management one can find many definitions of the concept of cash flows. This diversity is summarized in Table 1.

When analyzing the definitions of cash flows from Table 1, it should be mentioned that cash flows are to be understood as a positive (surplus) or negative (deficit) difference between inflows (positive streams) and outflows (negative streams) over a certain period of time.

In reference to the definitions of cash flows shown in Table 1, it is worth presenting the research conducted by Wędzki (2003) in terms of the formulas to create cash flows, which indicate that:

- The cash flow statement, next to the profit and loss account, is an important source of information due to the fact that obtained categories of results, i.e. net profit (loss) and net cash flows are essential to disclose financial situations of Polish enterprises;
- The only formula by which a value of net cash flows can be accurately calculated is the free cash flow—other methods are either not correlated or the observed correlation seems to be accidental;
- The most accurate way to estimate the operating cash flow is the formula of simplified flows, thus “operating profit + depreciation and amortization” (EBITDA), and then “net profit + depreciation and amortization”. It should be noted that in the ex post analysis it is appropriate to use a simplified method of estimating operating cash flows, i.e. the formula “operating profit + depreciation and amortization”. However, in the ex ante analysis “net profit + depreciation and amortization”.

Table 1 Cash flows in literature—a review of definitions

Author	Cash flows
Nowak (1996)	The difference between the revenues (from the sale of goods and services) and expenses related to the current functioning, occurring in particular years of the calculation period (the useful life of a product)
Waśniewski and Skoczylas (1995)	The ambiguity of cash flows is expressed by the following <ul style="list-style-type: none"> • Financial result + depreciation and amortization • Financial result + an increase in reserves created from profit • Financial result + depreciation and amortization + an increase in reserves created from profit + other non-cash expense (non-expenditure) • Financial result + non-cash expenses (non-expenditure) – non-cash income (non-inflows)
Sierpińska and Wędzki (1997)	In a narrow sense, the authors point to the amount of net income and depreciation and amortization of tangible fixed assets and intangible assets. In a broader sense, the formula encompasses cash flow as the sum of a financial result and non-cash expenses (depreciation and amortization, reserves) less non-cash income (non-inflows) In the broadest sense, it is a difference between inflows and outflows
Czubakowska (1994)	The cash flow statement is used to assess financial possibilities and sources of cash surplus in a company
Wędzki (2010)	Cash flows can be calculated at four different levels, i.e. <ul style="list-style-type: none"> • Financial result + depreciation and amortization (financial surplus) • Financial result + depreciation and amortization, adjusted against the change in working capital • The difference between cash inflows and outflows in the form of the so-called budget • Financial results adjusted against all non-cash transactions in the form of cash flow
Gos (2008)	The cash flow is defined as the difference (surplus/deficit) between inflows and outflows (i.e. positive and negative streams) of cash for a certain period of time. Thus, defining cash flows one can distinguish flows in a strict and broad sense Strictly speaking, flows are streams of inflows and outflows of cash compiled in order to determine their impact on the supply of cash and to measure and control potential financial liquidity of an entity In a broader sense, cash flows represent positive and negative flows affecting the assets and liabilities. They are identified in order to determine the structure of an entity's financial liquidity and, consequently, to assess its solvency in the future

Source: Own elaboration

Cash flows can be either positive or negative. A positive value may occur if cash turnover has a large share in total sales, which is undoubtedly a positive phenomenon. It also occurs when a company in a given period uses up the materials purchased in the previous period without simultaneously rebuilding the inventory. A similar situation is observed in the case of credit purchases of raw materials and

when their consumption precedes the actual payment of liabilities. Negative values can occur in the case of a large share of credit sales (trade credit) in total turnover and when an increase in receivables has a negative impact on the current ability to pay (Waśniewski 1993). These reasons for the positive or negative cash flows relate to the operating activity. A deficit or surplus of cash is also created due to many other reasons that are associated with other types of cash flows, i.e. investment and financing. The types of cash flows are the result of the form of presentation of the cash flow statement.

The cash flow statement is an essentially similar financial statement to the profit and loss account, as it is used to measure the financial result, and more precisely, the surplus of cash from business operations for a given period. The main difference between these statements arises from different principles for recognizing inflows and outflows coming from the business activity. The cash flow statement uses the cash basis and thus it presents the actual inflows and outflows, whilst the profit and loss account presents the same values, but on the accrual basis (Wędzki 2007). The cash flow statement provides useful and reliable information, independent of the accounting principles or policies. It is a valuable source as it informs of liquidity of an entity, its sources, and it is also more objective because financial results depend mostly on employed principles of valuation of assets and liabilities, and moreover, they are susceptible to any changes resulting from the applied balance policy (Gos 2008).

3 Literature Review

The analysis of the literature on the relationship between the indicators commonly used to assess the financial situation, i.e. those based on accrual data and those on the cash flows, indicates the two streams of opinions. The first stream includes those who believe that the cash flows are very important in the study of the financial condition of a company, whilst others believe that the accrual results are more important.

The researchers from the first group, when analyzing financial results of enterprises, focused on drawbacks resulting from accountants' benefits and indicated that the cash flows are the best measure of performance of a company. Smith and Watts (1992) claims that profits can be fabricated using 'creative accounting', but the creation of cash flows is not possible. Moreover, a profit is a matter of someone's opinion or 'a fair presentation', while cash is a fact. Cash is more important than profit; it is cash that is paid out as dividends, and the lack of cash—not the lack of profit—is the reason for the fall of companies (Smith and Watts 1992).

The second group that favors the accrual results says that according to the theory of business enterprise, shareholders are seeking to increase company's assets, not necessarily cash. Ball and Brown (1968) paper is an affirmation of accrual accounting, replicated many times. Dechow (1994) and Dechow et al. (1998), among

others, affirm the importance of accruals over cash flows under a variety of conditions. Penman and Yehuda (2009) share the same opinion. Their analysis explores an additional feature of accounting: not only does accrual accounting promote earnings as the primary valuation attribute (rather than cash flows), but actually treats cash flows as irrelevant to equity valuation. Their analysis examines how accounting numbers are contemporaneously priced in the stock market, as does much of capital markets research. However, stock prices provide a benchmark for evaluating accounting numbers only if those prices are ‘efficient.’ Considerable research indicates that a variety of accounting numbers are correlated with future stock returns as well as current prices. Indeed, Sloan (1996) shows that cash flows relative to accruals predict future stock returns. While the interpretation of these predictive correlations is open to debate, one conjecture is that stock markets do not price accounting information efficiently. If so, estimates of coefficients here are open to question; indeed, to be extreme, one could attribute the results here to the market being fixated on earnings rather than cash flows. The results their the paper seemingly conflict with previous research. In Rayburn (1986), Wilson (1987), Dechow (1994), Bowen et al. (1987), Clubb (1995), and Francis et al. (2003), among others, cash flow variables in return regressions load with a positive coefficient, with and without earnings included. The difference revolves around the issue of specification. Indeed Sloan (1996), while the pricing of earnings and cash flows is our substantive concern, the issue of specification in capital market research is a subtext. In this respect, the paper responds to the Holthausen and Watts’ (2001) criticism that capital markets research in accounting has had little to contribute to normative issues faced by standard setters. With attention to specification—which Holthausen and Watts argue is necessary—we are able to draw conclusions about a very basic normative issue, the use of cash accounting versus accrual accounting for business reporting. The results presented by Penman and Yehuda (2009) in no way nullifies the results in other papers; indeed, we are able to reconcile what look like very different findings to the earlier results.

4 Methodology

Four indicators have been selected in order to verify the research hypothesis formulated in this article:

- Return on Operating Assets (RoOA),
- Return On Equity (ROE),
- Cash Productivity of Sales (CPS),
- Cash Productivity of Assets (CPA).

Table 2 presents the name of the formula, short form of the name, the formula of the indicators selected for the study and the source of information used for the calculations.

Table 2 Selected indicators

Name of the ratio	Short form	Formula	Source of information
Return on Operating Assets	RoOA	EBIT/Average Operating Assets	Balance sheet, profit and loss account
Return On Equity	ROE	Net Income/Average Shareholders' Equity	Balance sheet, profit and loss account
Cash Productivity of Sales	CPS	Cash Flow from Operating activities (CFO)/Sales Income	Cash flow
Cash Productivity of Assets	CPA	Cash Flow from Operating activities (CFO)/Average Assets	Cash flow

Source: Own elaboration

The most common indicators used to assess the profitability of activities are profitability ratios. Profitability is the basic criterion inherent in business activity. Profitability means maximization of profit or of market share (Waśniewski 1997). In assessing the profitability the author used Return on Equity (ROE) and Return on Operating Assets (RoOA).

Return on Equity (ROE) is a measure of assessing performance useful for shareholders because it illustrates the company's ability to generate profit from each zloty of the equity. Therefore, the size of this indicator is interesting, first of all, for shareholders and stakeholders. ROE evaluates the profitability of capital, not only of a basic capital, but also the capital brought by the owners in the form of surplus from the sale of shares above their nominal value, contributions to capital or profits, the amount of which supplies the equity. When analyzing this indicator, important are not only comparisons of time and plan, but also comparisons giving the opportunity to assess the profitability of shareholders' capital against other companies from a given sector, but also in comparison with alternative investment directions.

RoOA presents the operating profitability of company's assets. It is different from its standard formula presented as net income, as in the numerator it has the operating profit (EBIT) instead of the net income. Such a formula provides an assessment of the financial situation of a company in terms of the operating profitability of its assets. Operating profitability allows an enterprise to maintain a basic aim of a company business activity, i.e. generating profit. It is important to note that operating profit provides a stable position on the market and smooth functioning. Therefore, it is a more important profit for internal assessment than the net profit, which is the final result allowing one to assess a company from the outside. Maximization of net profit of a company is in the interest of its owners or other people entrusting their capital to a company as the amount of profit is reflected by the potential return benefits.

Both indicators should go up over time, and their value compared with other standards should be as high as possible. Questionable is the use of profitability ratios to measure the profitability of businesses that do not generate profits. Of

course, this type of measurement is incorrect, because the formula shows that in the numerator of both ratios there is a profit. In addition, companies that generate a net loss, frequently have a negative equity, which gives a positive value when counting ROE, however that does not reflect a positive financial situation, but, on the contrary, a very bad one.

Other indicators used in the study are the indicators based on cash generated from operations (CFO). On a cash basis, the indicators of cash productivity inform of the rate of return on sales, as well as of the assets of a company. It should be emphasized that a high value of this group of indicators is positively evaluated. The application of these measures is helpful in assessing the financial flexibility of a given entity, giving the opportunity to receive cash in unforeseen situations (Maślanka 2008). Hence, these measures examine the ability to generate cash and the ability to create positive cash flows. They are a necessary complement to the analysis of liquidity and profitability of an entity and they provide a different view on analytical areas (Śnieżek and Wiatr 2011).

The indicator of cash productivity of sales (CPS) is characterized by the so-called quality of revenue generated by the sales of products, goods and materials, namely the level of their realization in cash. In other words, it informs of the amount of cash collected from each accrual unit of sales. It should be emphasized that changes in the size of the indicator only show the lack of relationship between the two values being compared. Hence, only the evaluation of percentage fluctuations of sales revenues and changes in accrual income from sales is the basis for a positive or negative analysis of cash productivity of sales. In fact, the level of this measure is considered sufficient when its value varies from 0.15 to 0.20. It should be noted that, at a given time, only a portion of generated revenues is transformed into cash (trade credits, contracts with partners, extended payment terms). Furthermore, in a given period, an entity also shows expenses from operating activities, most of them financed by current inflows (Śnieżek and Wiatr 2011).

Cash productivity of assets (CPA) shows the totality of possibilities of company's assets to generate positive cash flows from net transactions. It answers the question of what amount of cash surplus or deficit from the core operations there is per one unit (one złoty) of assets. In this case as well, a higher value of the indicator is preferred. In practice, the most satisfactory level of this measure is 0.3–0.35. In a way comparable to ROA, the rate of cash productivity of assets is sensitive to factors, such as the possibility of the company to obtain a positive net cash flow from operating activities, and the value of assets. The lower the level of assets generates cash, the better a situation for an entity is, but only when it has an economic explanation (Śnieżek and Wiatr 2011).

5 Objectives

The study was based on the financial statements of 131 companies listed on the Warsaw Stock Exchange in Poland in the years 2013–2014. Currently, the Warsaw Stock Exchange lists 483 companies as of July, 2016. Hence, the study focuses on 27% of all the companies listed on the WSE. Among the 483 companies listed on the stock exchange, there are 420 enterprises that can be described as non-financial. The Warsaw Stock Exchange lists 36 companies engaged in finance, 16 banks, 2 insurance companies and 9 companies from the capital market sector. This means that the selected research sample shows 31% of all non-financial companies listed on the Warsaw Stock Exchange. Table 3 presents the structure of the companies according to the sectors they operate in.

Table 3 shows the structure of the studied companies according to the sectors a given company comes from. Most of the companies come from the IT sector—23%. The 15% and 14% account for real estate development and retail, respectively. The enterprises in the energy and petroleum sector, food and construction account for 12%, 10% and 9%, respectively. The fewest companies come from the following sectors: telecommunication—6%, automotive—5%, hotels and restaurants—3%, and plastics—3%. Table 4 summarizes the medians of Return on Operating Assets (RoOA) and Return on Equity (ROE) in the years 2013–2014.

The median divides the group into two parts in such a way that 50% of the companies have values of less than or equal to the median, and 50% equal to or less than the median. In the case of RoOA, in the analyzed period, the sector of hotels and restaurants has the highest operating profitability of assets at the level of 8%. Information technology and plastics sectors have 5–6%. The lowest values are observed in the telecommunication sector at the level of 0–1%.

In the case of ROE, which informs of the rate of return for the owners, it should be noted that the median of this ratio has the highest value in the automotive sector,

Table 3 The structure of the companies according to sectors

Name of the industry	No. of companies	% (out of total 131)
Energy and petroleum	16	12
Hotels and restaurants	4	3
Telecommunication	8	6
Retail	18	14
Real estate development	20	15
Food sector	13	10
Automotive industry	6	5
IT	30	23
Construction industry	12	9
Plastic industry	4	3
Total	131	100

Source: Own elaboration

Table 4 The median of return on operating assets (RoOA) and return on equity (ROE) in the years 2013–2014

Name of the industry	RoOA		ROE	
	2013	2014	2013	2014
Energy and petroleum	0.02	0.00	0.08	0.07
Hotels and restaurants	0.08	0.08	0.03	0.03
Telecommunication	0.00	0.01	0.01	0.01
Retail	0.05	0.04	0.09	0.09
Real estate development	0.02	0.02	0.02	0.01
Food sector	0.04	0.05	0.09	0.08
Automotive industry	0.06	0.05	0.15	0.14
IT	0.06	0.06	0.10	0.06
Construction industry	0.02	0.03	0.05	0.04
Plastic industry	0.06	0.06	0.09	0.11

Source: Own elaboration

Table 5 The median of the cash productivity of sales (CPS) and the cash productivity of assets (CPA) in the years 2013–2014

Item	Name of the industry	CPS		CPA	
		2013	2014	2013	2014
1.	Energy and petroleum	0.06	0.04	0.05	0.02
2.	Hotels and restaurants	0.14	0.10	0.09	0.11
3.	Telecommunication	0.00	0.06	-0.01	0.01
4.	Retail	0.01	0.03	0.05	0.04
5.	Real estate development	-0.12	0.07	0.00	0.00
6.	Food sector	0.03	0.03	0.06	0.06
7.	Automotive industry	0.09	0.05	0.10	0.07
8.	IT	0.11	0.06	0.11	0.10
9.	Construction industry	0.06	0.04	0.04	0.04
10.	Plastic industry	0.12	0.07	0.11	0.06

Source: Own elaboration

amounting to 14–15%. Plastics sector is characterized by the average profitability of the equity at the level of 9–11%. In retail sector, 50% of companies achieve ROE >9%, and 50% <9%. The telecommunication sector is characterized by the lowest profitability with the median of 1%. The values of the indicators in the 2 years tend to be constant.

Table 5 presents the median of the cash productivity of sales (CPS) and the cash productivity of assets (CPA) in the years 2013–2014.

The analysis of the medians of the cash productivity of sales in the years 2013–2014 allows one to conclude that the examined sectors are characterized by a varying cash productivity of sales. The sector of hotels and restaurants is characterized by the highest average profitability of sales at the level of 14% and 10%, respectively. A high average cash productivity of sales was also observed in the sectors of information technology and plastics. In 2013, the lowest cash

productivity of 12% was recorded in the sector of real estate development. In 2014, the cash productivity of sales was significantly lower than in the previous year.

The analysis of the medians of the cash productivity of assets leads to a conclusion that the level of this productivity in all the sectors is less varied than the cash productivity of sales. In four out of ten sectors, the average cash productivity of assets was at the level of 10%, at least in one of the studied years. The worst result was recorded in the sector of real estate development where the average was zero. The telecommunication sector recorded negative average values of productivity in 2013. Comparing the values of these indicators, it should be noted that there was a decline in the average values, or they remained constant in both studied periods.

6 Indicators of Performance Analysis

The correlation analysis was performed in order to compare financial results based on the accrual and cash accounting data. The analysis was based on four variables. Two of them based on accrual data, i.e. RoOA and ROE, and two based on the cash data, i.e. cash productivity of sales (CPS) and cash productivity of assets (CPA).

The correlation analysis uses different measures defined by features (quantitative, qualitative), presentation of statistical data (individual data, correlation tables) and the association or relationship between variables (linear, curvilinear) (Sobczyk 2006). When the two features are quantitative, and their association is linear, the most widely used measure is the Pearson's product-moment correlation coefficient.

The Pearson's product-moment correlation coefficient (or the PPMCC) can be expressed as follows:

$$r_{xy} = r_{yx} = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{ns(x)s(y)} = \frac{\text{cov}(x,y)}{s(x)s(y)} \quad (1)$$

where:

x is the variable RoOA or ROE

y is the variable CPS or CPA

s(x) is the standard deviation of RoOA or ROE

s(y) is the standard deviation of CPS or CPA

cov(x,y) the covariance, i.e. the mean value of the product of the deviations of two variables from their respective arithmetic means.

Table 6 presents the results obtained from the Pearson's product-moment correlation coefficient for the variables RoOA and ROE, CPS and CPA.

Table 6 The results obtained from PPMCC to compare accrual and cash results

Variable x	Variable y	Pearson's correlation coefficient	
		2013	2014
RoOA	CPA	0.09	0.39
ROE	CPS	0.05	0.03
ROE	CPA	0.06	0.20
RoOA	CPS	0.35	0.05

Table 7 The results of Student's *t*-Test and statistical significance

Years	Variable X	Variable Y	Results of Student's <i>t</i> -Test, $n - 2 = 129$ degrees of freedom	P—statistical significance
2013	RoOA	CPA	0.50	0.618
	ROE	CPS	0.04	0.968
	ROE	CPA	0.38	0.704
	RoOA	CPS	0.85	0.397
2014	RoOA	CPA	0.32	0.749
	ROE	CPS	0.25	0.803
	ROE	CPA	0.84	0.402
	RoOA	CPS	0.87	0.386

The analysis of the results of the correlation coefficient calculated for the two periods 2013 and 2014 presented in Table 7 indicates a positive very weak or a weak correlation between the two variables.

Firstly, the relationship or association between Return on Operating Assets (RoOA) and Cash Productivity of Assets (CPA) was assessed. Both indicators are used to evaluate the effective use of business assets—RoOA based on the accrual basis, and CPA in terms of cash. From the point of view of the theory of accounting, both indicators contain comparable economic categories in the numerator, i.e. RoOA—operating profit, and CPA—cash flows from operating activities. However, despite the similar content found in the formulas of these indicators, the correlation between the two variables was very weak in 2013 or weak in 2014.

Secondly, the relationship between Return on Equity (ROE) and Cash Productivity of Sales (CPS) was examined. In both studied years they showed a very weak association. Considering these indicators, when comparing their structures, it can be said that both are based on different non-comparable economic terms. The numerators of these indicators contain net profit in ROE and operating cash flow in CPS, and in the denominator equity in ROE and sales income in CPS. That supports a thesis found in economic theory that the increase in cash lowers the level of equity in a company.

The analysis of the power and direction of the relationship between ROE and CPA in 2013–2014 indicates that in the 2 years it was low and positive. This means that the tendency towards an increase or decrease in the value of both indicators is identical. The relationship between accrual and cash profitability are of little or no significance.

When analyzing the correlation between RoOA and CPS it can be determined that it was very weak in 2014 or weak in 2013.

The significance level is a numeric value which represents point-based assessment of the power of association in a general population. Hence the need to test the significance of the correlation coefficient calculated based on a random sample. Thus, the following set of hypotheses was verified: $H_0: \rho = 0$, $H_1: \rho \neq 0$. The verification of the null hypothesis is helpful to assess whether the existing relationship between X and Y in a sample is only a coincidence or a regularity in the population.

Given the significance level of 5%, as recommended in the social studies and $n - 2 = 129$ degrees of freedom, it can be said that all the results are statistically significant. When the results of the significance level are $>5\%$ ($p > 0.05$), this means that there is no reason to reject the research hypothesis on the existence of low or weak relationship between the two studied values, and thus the results are statistically significant. For example, for $p = 0.618$, it means that 61.8% of the results are accidental, and 38% are not accidental, meaning that these are the results of our research.

7 Conclusions

This article aims to investigate the relationship between the indicators commonly used to assess a financial situation based on accrual and cash flow accounting. A financial result can be a subject of manipulation arising from the possibility of using alternative accounting and financial methods. It results in the loss of credibility of the assessment of the financial condition of a company based on the accrual data. Cash flows compared to financial results are not subject to manipulation resulting from accounting policies employed in a given entity. Hence, formulated hypothesis assumes that the assessment of profitability carried out with the use of cash flow indicators reflects the true and reliable image of a company, in contrast to the indicators based on a financial result. The hypothesis about dissimilarity of the assessment of a financial condition has been proven by the analysis of the correlation between the accrual and cash results. The analysis of a financial situation based on cash flows led to the conclusion that a financial situation is more complete, reliable and not affected by balance and tax policy, but also there are differences between the assessment based on financial ratios calculated on the basis of accrual data (the balance sheet and the profit and loss account) and the financial situation of the studied companies based on cash data.

Here appears a question of how to assess the financial position of a company—whether to include accrual data or cash data and why these measures are not consistent with each other. It is not enough to say that the accrual and cash data are not consistent with each other, because this is due to the method of recording economic events occurring in a given business entity—on the accrual basis (economic event is accrual document), and in cash terms (economic event is the impact

or cash expenditure). The drawbacks of the net profit as the basic economic category of a company defining its target business activity were tested and confirmed by, above all, the bankruptcy of Enron and the fall of WorldCom. These bankruptcies drew public attention to many dangers of the fictitious financial reporting and imperfections of the current system. Both bankruptcies resulted in the financial crisis of 2008, which had far-reaching consequences. Managers' pride and their greed led to the devaluation of the value of information derived from the financial statements, and above all, of the economic category derived from net profit. Despite the growing importance of cash flows as a universal measure, it should be stressed that multidirectional assessment of the financial situation requires collecting information from all available sources, i.e. the balance sheet, profit and loss account and the cash flow statement. Believing that preparers of financial statements will rebuild their credibility and will diligently prepare financial statements, accrual results should be confronted with cash data in the assessment of the financial situation.

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Research on Risk-Based Common European Union Deposit Insurance System in Lithuanian Banks

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Abstract Global 2008 financial crisis has shown that the deposit insurance system did not help to maintain depositor confidence and the whole banking sector financial stability in the beginning of banks' failure. Scientific discussions emphasized that the main problem associated with the current deposit insurance system is the fact that many EU countries, current deposit systems do not evaluate the banks' risks calculating deposit insurance premiums, and thus do not provide sufficient stability of the banking system. The aim of the research is to evaluate the risk-based common European deposit insurance system impact on deposit insurance premiums to Lithuanian banks. The research period for the analysis of deposit insurance premiums to Lithuanian banks is 2010–2014. In the risk-based model, the main risk indicators are evaluated by European Banking Authority. Performed deposit insurance system problem analysis showed that deposit insurance system has positive characteristics, it is a key tool in the fight against depositors panic and helps to maintain confidence in the financial institutions, but it also has a negative impact. Theoretical deposit insurance models evaluation showed that in many EU countries, the existing deposit insurance systems do not provide sufficient protection on depositors because contributions are not based on banks' risk assessment, which means that deposit insurance does not perform one of its basic functions. The introduction of risk-based deposit insurance system would redistribute contributions among the Lithuanian banks and thus contribute to the negative effects of deposit insurance systems mitigation and growth of all financial system stability.

Keywords Deposit insurance • Risk-based • European deposit system

1 Introduction

The core functions of deposit insurance system are to ensure the protection of depositors and to enhance the financial stability. The main problems associated with the banking business are too big volume of risk assumed by banks and too small

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insurance for its clients. One of the major banks form in raising funds is the acceptance of deposits, so the importance of this activity of banks is undeniable. One of the major common deposit insurance system development goals is to minimize the burden on taxpayers when the bank experiences financial difficulties. In European Union countries, deposit insurance systems are very different, both in their contributions to the deposit insurance system for the collection and calculation of fees and by the supervising authorities and other aspects. European Union several times tried to create a common deposit insurance system in the whole European Union based on banks' risk assessment. In order to unify the deposit insurance systems since 2008, the European Commission has started to present a common deposit insurance scheme, which could be applicable in all European Union countries. Since 2008, the European Commission has presented three different deposit insurance systems, and the latest one was introduced only in the middle of 2015. Scientific researches emphasized that the main problem associated with the current deposit insurance system is that in many EU countries current deposit systems do not evaluate the banks' risks calculating deposit insurance premiums, and thus do not provide sufficient stability of the banking system. There are no researches evaluating the effect of new deposit insurance system to Lithuanian banks deposit insurance premiums. So the object of the research is common EU deposit insurance system. The aim of the research is to evaluate the risk-based common European deposit insurance system's impact on deposit insurance premiums to Lithuanian banks. To reach this aim, the following tasks were made: examine the theoretical deposit insurance system evaluation models; provide risk assessment based on common European Union deposit insurance system impact on Lithuanian banks' premiums research methodology; perform risk-based deposit insurance premiums to Lithuanian banks' analysis.

2 Research Methodologies

This article analyses and summarizes the various authors' studies in the field of deposit insurance systems. Firstly, article provides different authors' studies with the risk-based deposit insurance systems. Later the EU's deposit insurance system risk assessment methodologies are analyzed and peculiarities of the insurance premiums calculations are presented. After the analysis of 2015 year presented common EU deposit insurance system, the analysis of Lithuanian banks' deposit insurance premiums is conducted. The analyzed period covers 2010–2014 years and analyses of all six Lithuanian banks are performed. The current Lithuanian banks' deposit insurance premiums are compared to risk-based deposit insurance premiums by common EU deposit insurance system.

The European Banking Authority indicated the guidelines for the annual contributions to the Deposit Guarantee Scheme (DGS) which may be calculated according to the following formula (EBA 2015):

$$C_i = CR \times ARW_i \times CD_i \times \mu \quad (1)$$

where:

C_i —Annual contribution from member institution;

CR —Contribution rate (identical for all member institutions in a given year);

ARW_i —Aggregate risk weight for member institution;

CD_i —Covered deposits for member institution;

μ —Adjustment coefficient (identical for all institutions in a given year).

Each year, the calculation of the annual target level of deposit insurance premium rate (CR) should be based on several assumptions:

- DGS began to collect contributions before the occurrence of the insured event (ex-ante deposit insurance type) of its member's institutions and over 10 years, the target amount of the deposit guarantee system amount should be reached;
- Contributions to the DGS must be spread over 10 years and as evenly as possible;
- Each year contributions collected by the DGS must be equal to the annual target rate of premium which is set for the relevant year.

The adjustment factor should be used to ensure that the total annual contributions (total amount of all individual premiums) are equal to 1/10 of the target level.

In accordance with the instructions of the EBA weights applied to individual risk categories and key risk indicators were determined and are presented in Table 1. 75% of weights are divided by EBA guidelines instructions and 25% of weights could be distributed to different risk indicators. Common EU deposit insurance system could cover other risk indicators, which would help to get better assessment of banks' risk. This model analyzes only EBA specified risk indicators and the 25% of weights are distributed by EBA (2015) guidelines instructions.

Table 1 Applied weights to risk categories and key risk indicators in the model

Risk categories and core risk indicators	Weights
Capital	24 proc.
Leverage ratio	12 proc.
Common equity tier 1 ratio	12 proc.
Liquidity and funding	24 proc.
Liquidity ratio	24 proc.
Asset quality	18 proc.
Non-performing loans ratio	18 proc.
Business model and management	17 proc.
Risk-weighted assets/total assets ratio	8.5 proc.
Return on assets (ROA)	8.5 proc.
Potential losses for the DGS	17 proc.
Unencumbered assets/covered deposits	17 proc.
Sum	100 proc.

Source: EBA (2015)

By current deposit insurance system in Lithuania, all commercial banks must pay 0.45% from their covered deposit amount. This percentage is the same for all banks, regardless their assumed risk level. In order to compare current deposit insurance premiums with risk-based, relative change in the risk-based deposit insurance contributions and current deposit insurance contribution in Lithuania is calculated:

$$\text{Deposit insurance contributions change\%} = (I_1 - I_0/I_0) \times 100 \quad (2)$$

where:

I_1 —risk-based contribution;

I_0 —contribution by existing current deposit insurance system in Lithuania.

After the analysis of risk-based common EU deposit insurance system premiums in Lithuanian banks the suggestions and final remarks are presented.

3 Importance of Risk-Based Deposit Insurance System

The main objective of the deposit insurance system is to protect depositors and contribute to financial stability, but it is very important that the society should be informed about the benefits of deposit insurance system and its limitations (International Association of Deposit Insurers 2014). Altunbas and Thornton's study (2013) confirms that clearly defined deposit insurance system is more favorable to depositors. Deposit insurance system not only contributes to the protection of depositors, but also affects bank's decisions and the entire banking system. Prean and Stix's study (2011) showed that the new limits of deposit insurance amount had a positive impact on the confidence of depositors and the stability of the local currency.

While deposit insurance provides benefits to depositors, it sometimes can lead to negative consequences for the banks. Deposit insurance can affect banks' risk-taking (the banks' loan credit quality). Ioannidou and Penas (2010) found that the introduction of deposit insurance leads to the subprime loans probability increase in the bank. Furthermore, the bank does not increase the collateral requirements or does not reduce the debt in order to compensate for the additional risk. Deposit insurance impact on banks' risk-taking and the quality of regulation in ten Islamic banks and commercial banks in South Korea analyzed by Kim et al. (2014). The study showed that after the introduction of deposit insurance, banks began actively to take additional risks, which led to the increase of moral hazard. It was noticed that banks assume greater risk in countries where deposit insurance scheme is intended to protect foreign currencies or interbank deposits.

Khan and Dewan (2011) examined the impact of deposit insurance system on banking crisis occurrence. The results showed that the countries which were using clearly defined deposit insurance system increase the probabilities of the banking

crisis, when the country's overall economic development is associated with a clearly defined deposit insurance system. This crisis probability increases even more when clearly defined deposit insurance system is inefficiently designed, especially if it is financed before the occurrence of the incident and include inter-bank deposits as well as many other types of deposits. The study showed that in the less developed countries, deposit insurance system interacts more with the country's economic development and there is a higher probability of banking crises. It was found that the higher funding of deposit insurance leads to reduction of high-return opportunities in bank, but improves the efficiency of low-risk instruments (Chen and Chang 2015).

Angkinand and Wihlborg (2010) state that majority of state-owned banks are associated with higher risk assumption estimating the volume of non-performing loans to capital. Authors argue that banks' exposure to risk is reduced if the coverage of deposit insurance is medium level. According to Bijlsma and van der Wiel (2015) clients' perceptions differ about how much of the amount of deposits they would actually recover if the bank becomes insolvent, and how long the recovery process would take. Study has shown that many users have a lack of knowledge associated with deposit insurance system and they have too pessimistic expectations regarding deposit insurance operations and return of their covered deposit.

The global financial crisis which was in 2008 revealed the instability of the banking system and the negative impact on the entire financial system, after banking collapse. The main problems are associated with banking activities, too high bank's risks and too low insurance to their clients. Although the basic deposit insurance system function is to protect the interests of consumers and to ensure the financial stability of the whole system, but in order to achieve this, it is necessary to begin to assess banks' risk-taking, calculating deposit insurance premiums. The risk-based deposit insurance system would enhance the whole financial system stability.

Authors Gómez-Fernández-Aguado and Partal-Ureña (2013) revealed that in the end of 2012 only 9 of 27 EU countries' deposit insurance premiums were based on a risk assessment. The authors also argue that the assessment of the risk-based deposit insurance system is fairer and more economically proved, in comparison with those deposit insurance systems in which all members pay flat-rate contributions. Authors Chen et al. (2010) also argue that more borrowed funds using banks would have to pay higher premiums to compensate the increased risk associated with the leverage effect. Chu (2011) claims that risk-based deposit insurance premiums can help to limit the volumes risk in banks. According to Bernet and Walter (2009) risk-based deposit insurance system will contribute to financial stability growth. Enkhbold and Otgonshar (2013) also agree that introduction of risk-based deposit insurance premiums can help to avoid moral hazard or at least help to reduce the scale of it.

The current deposit insurance system in Lithuania and many EU countries is based on the same percentage of the insured deposits amount, without evaluating the assumed risks by banks. Equal percentage based deposit insurance scheme does not attempt to limit bank risk taking and this has a negative impact on the whole country's financial stability. Lakštutienė et al. (2011) present ways of avoiding negative deposit insurance system consequences. Negative consequences could be

avoided by allowing the operation of market discipline, increasing the bank's responsibility for managing and promoting the interests of transparency, also by the deposit insurance system management at government level and making changes in the deposit insurance funding model.

The first common EU deposit insurance system model was introduced in 2008 when deposit guarantee scheme has been defined as Single Indicator Model. The European Commission's researches showed that the combination of the different categories of indicators can capture the additional information and achieve a better and more accurate bank's risk assessment. In order to prevent one indicator model weaknesses and perform better risk assessment of banks in 2009 the European Commission has launched a new deposit insurance premium calculation model—Multiple Indicators Model. Multiple Indicators Model is certainly more complicated, because this model was used to address the main shortcomings of one indicator model. Summarized Single and Multiple indicators models similarities and differences are presented in Fig. 1.

Research has shown that although Multiple Indicators Model is more accurate and better assess banks' level of risk, but a risk assessment should cover more indicators in order to more accurate assessment of the bank's risk, so in 2014 the European Parliament adopted a new Directive on deposit guarantee schemes. According to the newly adopted Directive of the European Parliament on the new deposit guarantee system, the European Banking Authority in 2015 provided guidance on the new deposit guarantee scheme premiums calculation

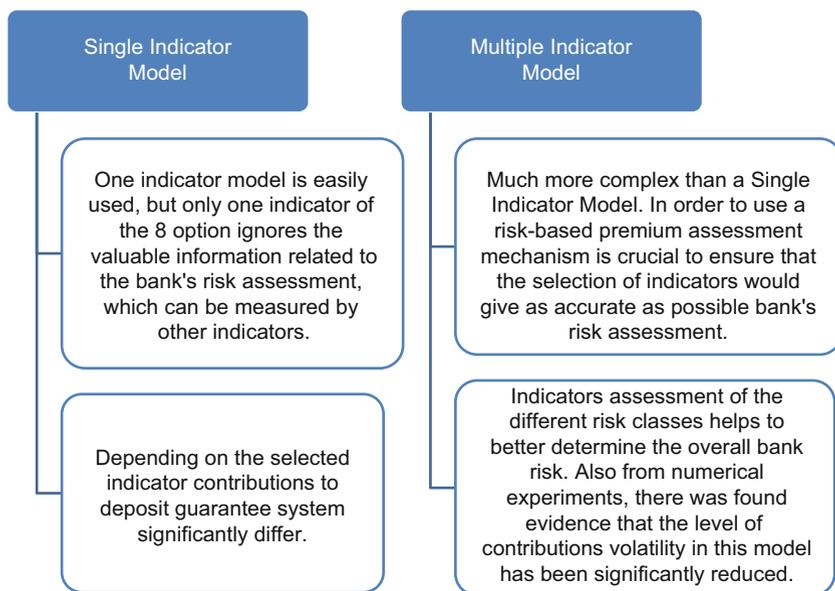


Fig. 1 Single and multiple indicators models similarities and differences (own elaboration based on European Commission 2009)

methodologies—Aggregate risk weight model (European Parliament and Council Directive 2014). The latest EU deposit insurance premium calculation model more accurately assess the banks' risks, this model includes one additional risk group and evaluates more risk indicators. The main difference of aggregate risk weight model is that in this model, each risk indicator has its risk weight, while in previous models all risk indicators had the same effect on the risk assessment.

4 Risk-Based Common European Union Deposit Insurance System Impact to Deposit Insurance Premiums in Lithuanian Banks

Risk indicator assessment is carried out for each of the five main groups of risk indicators. Risk indicators are analyzed in all six banks operating in Lithuania. Data to calculate all risks indicators are collected from banks' balance sheets, profit (loss) statements and explanatory notes. Each risk indicator is calculated based on the EBA (2015) Guidelines risk indicators formulas. In order to determine the risk group of each risk indicator, they are categorized by quartiles into three risk groups (minimum risk, medium risk and high risk), because division into smaller groups would not be appropriate. Table 2 provides indicators limits, which according to each indicator value show individual risk score. High ROA indicator value is also associated with high risk, so ROA indicator distinction between risk groups is carried out under a separate principle. The first risk group is determined from 0 to 30 quartile the second from 30 to 60 and the third from 60 to 90, and in excess of 90 quartile value is assigned to the highest risk group, because it is associated with the additional risk assumed by the bank. Only significantly exceeding the ROA indicator value can be attributed to high-risk group, so that is why 90 quartile was selected.

Liquidity indicators value, non-performing loans ratio value, unencumbered asset and covered deposit indicators in all Lithuanian banks for 2010–2014 years are presented in Table 3.

Table 2 All risk indicators individual risk scores

Group	1 group	2 group	3 group
Leverage ratio (LEV)	>0.11	≤0.11 < 0.09	≤0.09
Common equity tier 1 ratio (CET)	>0.17	≤0.17 < 0.12	≤0.12
Liquidity ratio	>0.45	≤0.45 < 0.39	≤0.39
Non-performing loans ratio	≤0.01	≤0.04 < 0.01	>0.04
Risk-weighted assets/total assets ratio (RWA)	≤0.60	≤0.75 < 0.60	>0.75
Return on assets (ROA)	≤0.75	≤0.28 < 0.75	<0.28 or ≥1.85
Unencumbered assets/covered deposits	>1.45	≤1.45 < 1.3	≤1.3
Individual risk score (IRS)	0	50	100

Source: Prepared by authors

Based on the actual indicators value each indicator is assigned an individual risk score. By liquidity ratio least risky bank can be considered as Medicinos Bank, which liquidity indicator for the entire analyzed period 2010–2014 period, with the exception of 2013, fell into the low-risk group. The most risky bank by liquidity indicator was defined as AB SEB bank. By non-performing loan ratio at least risky bank can be regarded as “Citadele” bank. “Citadele” bank tries not to grant loans to high-risk customers, which leads to a low non-performing loan ratio for all 2010–2014 period. It was found that the most high-risk and high-risk customers by lending bank can be regarded as AB “Swedbank”, it shows that this bank assumes a higher risk of his activities compared to other operating banks in Lithuania. UAB Medicinos bank according to potential losses on the deposit guarantee system is the most risky, its unencumbered asset and covered deposit in 2010–2014 period was the lowest comparing with the other operating banks in Lithuania. Least risky banks could be considered as AB SEB bank and DNB bank, its unencumbered asset and covered deposit indicators were assigned to lowest and medium risk groups.

All operating banks in Lithuania leverage ratios and common equity tier 1 indicator for the period 2010–2014 are presented in Table 4.

By capital ratios AB “Swedbank” and AB Citadel Bank can be considered the least risky banks. Only in AB “Swedbank” in 2012–2014 years both capital ratios have been assigned to the low-risk groups. As the most risky bank by capital ratios

Table 3 Indicators in all Lithuanian banks for 2010–2014 years

Year	“Swedbank”, AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	“Citadele” bank, AB	Medicinos bank, UAB
Liquidity ratio						
2010	43.62	35.88	36.60	46.00	32.82	54.25
2011	42.77	46.12	44.78	38.36	36.97	51.95
2012	39.28	35.69	44.03	42.78	44.76	48.75
2013	37.84	38.81	39.04	53.94	42.53	42.53
2014	42.39	32.89	38.08	55.51	61.15	49.08
Non-performing loans ratio						
2010	0.11	0.05	0.03	0.01	0.00	0.07
2011	0.13	0.05	0.02	0.02	0.00	0.02
2012	0.09	0.04	0.02	0.01	0.01	0.02
2013	0.05	0.04	0.02	0.08	0.01	0.01
2014	0.03	0.02	0.00	0.04	0.01	0.01
Unencumbered asset and covered deposit indicators						
2010	1.33	2.07	1.44	1.33	1.51	1.29
2011	1.32	2.00	1.97	1.37	1.34	1.32
2012	1.24	1.74	1.92	1.31	1.37	1.22
2013	1.27	1.72	1.87	1.14	1.37	1.23
2014	1.22	1.47	1.75	1.12	1.31	1.13

Source: Prepared by authors

Table 4 Capital indicators in all Lithuanian banks for 2010–2014 years

Year	Indicators	“Swedbank”, AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	“Citadele” bank, AB	Medicinos bank, UAB
2010	LEV	0.10	0.08	0.08	0.11	0.15	0.11
	CET	0.20	0.11	0.09	0.14	0.18	0.12
2011	LEV	0.10	0.06	0.10	0.10	0.15	0.08
	CET	0.21	0.10	0.14	0.13	0.17	0.08
2012	LEV	0.12	0.09	0.11	0.10	0.14	0.08
	CET	0.26	0.13	0.14	0.13	0.21	0.09
2013	LEV	0.14	0.10	0.11	0.06	0.15	0.08
	CET	0.32	0.15	0.15	0.09	0.18	0.10
2014	LEV	0.15	0.10	0.11	0.06	0.11	0.08
	CET	0.42	0.20	0.16	0.10	0.16	0.12

Source: Prepared by authors

Table 5 ROA and RWA indicators in all Lithuanian banks for 2010–2014 years

Year	Indicators	“Swedbank”, AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	“Citadele” bank, AB	Medicinos bank, UAB
2010	RWA	0.50	0.72	0.80	0.78	0.83	0.94
	ROA	-0.02	-0.06	-1.09	-1.03	-4.45	-4.08
2011	RWA	0.46	0.61	0.75	0.80	0.89	0.99
	ROA	3.20	1.49	0.72	0.47	0.61	-3.05
2012	RWA	0.48	0.74	0.74	0.81	0.69	0.86
	ROA	1.77	0.56	0.76	0.51	1.14	0.47
2013	RWA	0.43	0.65	0.71	0.63	0.82	0.81
	ROA	2.90	0.90	0.47	0.20	0.62	0.27
2014	RWA	0.36	0.51	0.69	0.59	0.67	0.67
	ROA	1.85	0.97	0.17	0.66	0.06	-3.78

Source: Prepared by authors

may be regarded as UAB Medicinos bank, 2011–2014 years both indicators fell into the highest risk groups. In AB Siauliu bank 2013–2014 years, it can be seen the increase of capital risk, both indicators have also been included in the highest risk groups.

ROA and RWA indicators value for 2010–2014 years in all Lithuanian banks are presented in Table 5. In 2010, all in Lithuania operating banks have experienced losses, which resulted to negative ROA indicators value and these indicators assignment to the maximum risk group. As the most risky bank according to management efficiency can be considered Medicinos bank, because this bank ROA and RWA indicators were most risky comparing with the other banks. In 2011 and 2013–2014 years AB “Swedbank” ROA indicator fell into the maximum

risk group because of higher than 1.85% value which is associated with the higher banks assumed risk.

After setting each risk indicator value in Lithuania operating banks and assign them appropriate risk score, aggregate risk weight is determined. ARW coefficient groups' distribution is carried out based on the EBA (2015) guidelines and evaluation of Lithuanian banks' overall risk score value. ARW coefficients groups are presented in Table 6 and it is shown different banks' risks, one group shows the average risk of the bank (group 2), one shows a low risk profile of the bank (group 1) and two risk groups (which ARW is more than 100%) shows high risk banks.

The aggregate risk score (ARS) is calculated based on each bank's risk indicators weight and assign risk scores (IRS) to each risk indicator. Calculated each bank ARS value is submitted in Table 7.

Calculated ARS value indicates different levels of risk assumed by banks. From ARS value, it can be seen that throughout the analyzed period all banks' risk has changed significantly. After calculated ARS value, each bank was assigned respective ARW coefficient value (see Table 8).

Throughout the analyzed period, the most risky bank can be considered as Medicinos bank, which aggregate risk weight was relatively highest comparing with the other banks. In a similar risk level was AB Siauliu bank, which only in 2010 had a lower risk. In 2013–2014 years, AB Siauliu bank risk profile has increased in comparison with 2012 level, which was mainly caused by increase of capital ratios risk (leverage and tier one capital ratio) and unencumbered assets and guaranteed deposit indicator reduction. Medium risk had AB “Swedbank” and AB DNB bank, but their aggregate risk weight during analyzed period greatly changed.

After calculation of ARW coefficients (based on 1 formula) each bank annual deposit insurance premium is determined. Contribution rate does not affect the

Table 6 Aggregate risk weight groups and their value

Risk group	ARS value	ARW (%)
1 group	<40	75
2 group	≤40 < 50	100
3 group	≤50 < 60	125
4 group	≥60	150

Source: Own elaboration based on EBA (2015)

Table 7 Aggregate risk score values for 2010–2014 years

Year	“Swedbank”, AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	“Citadele” bank, AB	Medicinos bank, UAB
2010	53.00	78.75	82.50	37.50	41.00	70.00
2011	53.00	46.25	41.50	66.25	51.25	58.50
2012	47.00	59.50	37.25	45.25	24.75	62.75
2013	67.50	49.25	41.50	71.75	33.25	70.00
2014	46.50	39.00	36.75	54.25	33.25	53.75

Source: Prepared by authors

Table 8 Aggregate risk weight value for 2010–2014 years

Year	“Swedbank”, AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	“Citadele” bank, AB	Medicinos bank, UAB
2010	1.25	1.5	1.5	0.75	1	1.5
2011	1.25	1	1	1.5	1.25	1.25
2012	1	1.25	0.75	1	0.75	1.5
2013	1.5	1	1	1.5	0.75	1.5
2014	1	0.75	0.75	1.25	0.75	1.25

Source: Prepared by authors

Table 9 Annual contributions in Lithuanian banks for 2010–2014 years, in thousand LTL

Year	“Swedbank”, AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	“Citadele” bank, AB	Medicinos bank, UAB	Total
2010	70,899	65,102	52,603	5944	2752	4396	201,695
2011	73,734	54,715	25,615	13,440	3936	3403	174,843
2012	66,670	69,713	20,357	9939	2466	4813	173,958
2013	100,830	59,606	28,864	31,128	2316	4777	227,519
2014	77,627	52,150	24,979	27,834	3422	4199	190,210

Source: Prepared by authors

banks’ risk identification; it is used to ensure a certain amount of the deposit insurance fund size. In order to make more accurate comparison with current deposit insurance premiums the contribution rate is 0.45% (current contribution rate for Lithuanian banks). Calculating banks’ annual contributions, the adjustment coefficient is not used, because the adjustment of deposit insurance fund in the first year is not appropriate. Calculated annual contribution amount to the common EU deposit insurance fund for 2010–2014 period is provided in Table 9.

Analyzing annual contributions, the largest contributions throughout the period, with the exception of 2012, would have to pay AB “Swedbank”, which had a large volume of guaranteed deposits and assumed a higher than average risk. In 2012, largest contribution to common EU deposit insurance system would have to pay AB SEB bank, this results were caused by increased level of risk and high aggregate risk value. Minimum contributions in 2010–2014 years comparing with the other banks would have paid AB “Citadele” bank and UAB Medicinos bank. Examining total annual contributions by all Lithuanian banks, the largest volumes of premium would be paid in 2013, whereas the maximum covered deposit volumes were in 2014 years. However, in 2014, banks have assumed a lower risk level, which resulted in a smaller ARW value and lower contributions to the common EU deposit insurance fund. Table 10 provides in Lithuania operating banks current and risk-based deposit insurance premiums and deposit insurance contribution changes in 2010–2014 years.

UAB Medicinos bank and AB “Swedbank” most of the analyzed period would have to pay larger contribution by risk-based deposit insurance system comparing

Table 10 Deposit insurance premiums comparison in Lithuanian banks for 2010–2014 years

Year	Model	“Svedbank“, AB	SEB bank, AB	DNB bank, AB	Siauliu bank, AB	“Citadele“ bank, AB	Medicinos bank, UAB	Total
2010	Current contribution, thousand LTL	56,719	43,401	35,069	7925	2752	2931	148,796
	Risk-based contribution, thousand LTL	70,899	65,102	52,603	5944	2752	4396	201,695
	Contributions change, proc.	25.00%	50.00%	50.00%	– 25.00%	0.00%	50.00%	35.55%
2011	Current contributions, thousand LTL	58,987	54,715	25,615	8960	3149	2722	154,149
	Risk-based contribution, thousand LTL	73,734	54,715	25,615	13,440	3936	3403	174,843
	Contributions change, proc.	25.00%	0.00%	0.00%	50.00%	25.00%	25.00%	13.43%
2012	Current contributions, thousand LTL	66,670	55,770	27,143	9939	3289	3208	166,019
	Risk-based contribution, thousand LTL	66,670	69,713	20,357	9939	2466	4813	173,958
	Contributions change, proc.	0.00%	25.00%	– 25.00%	0.00%	– 25.00%	50.00%	4.78%
2013	Current contributions, thousand LTL	67,220	59,606	28,864	20,752	3088	3184	182,713
	Risk-based contribution, thousand LTL	100,830	59,606	28,864	31,128	2316	4777	227,519
	Contributions change, proc.	50.00%	0.00%	0.00%	50.00%	– 25.00%	50.00%	24.52%
2014	Current contributions, thousand LTL	77,627	69,533	33,305	22,267	4562	3359	210,653
	Risk-based contribution, thousand LTL	77,627	52,150	24,979	27,834	3422	4199	190,210
	Contributions change, proc.	0.00%	–25.00%	–25.00%	25.00%	–25.00%	25.00%	–9.70%

Source: Prepared by authors

with their current amount. These differences are because of larger assumed risk comparing with the other banks. AB SEB bank and AB Siauliu most of the analyzed period also would have to pay larger contribution by risk-based deposit insurance system, but in 2014, AB SEB bank would have to pay smaller contribution comparing with current and in 2010, AB Siauliu bank also would have to pay smaller contribution comparing with current deposit insurance system in Lithuania. AB DNB bank and AB “Citadele” bank would have to pay smaller deposit insurance contributions in most of analyzed period, because these banks assumed smaller amount of risk than other banks in Lithuania.

5 Conclusions and Recommendations

Theoretical deposit insurance systems analysis showed that in the most EU countries, existing deposit insurance systems do not provide sufficient protection for depositors because contributions are not based on banks’ risk assessment. In order to unify the deposit insurance system differences and improve the effectiveness of the deposit insurance system, since 2008, the European Commission has been trying to create a common EU deposit insurance system. Since 2008 three deposit insurance systems models were presented, ranging from extremely flexible and easily adaptable single indicator method moving to the minimum weights of the risk categories, and key risk indicators and assigning aggregate risk weight. Following the European Commission’s deposit insurance system researches and European Banking Authority guidelines risk-based deposit insurance premium research methodology is formed. The aggregate risk weight is calculated in all Lithuania operating banks and contributions to common EU deposit insurance system is determined.

Assessing risk-based deposit insurance premiums for 2010–2013 period, total amount from all Lithuanian banks would be higher comparing with current deposit insurance system contributions. Introduction of risk-based deposit insurance system would redistribute contributions among Lithuanian banks and contribute to the negative effects of deposit insurance system mitigation and all financial system stability growth. Further studies should examine other risk indicators enrollment in common EU deposit insurance system and its impact on deposit insurance premiums.

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The Impact of Internal Rating System Application on Credit Risk Management in Banks

Sanja Broz Tominac

Abstract Credit risk is the most important risk for banks which means that it is one of the most important factors for banks' stability. The source of credit risk is the weakness of credit ability of a client which leads to bank's losses. Losses are daily reality of every bank and according to that should be recognized, measured and implemented in credit risk managing models. The aim of this paper is to investigate how banks in Croatia are using internal rating system in their business on a daily basis, i.e. is the application of rating included in all phases of credit process. Data that will be presented in the paper will be collected through a questionnaire. The application of ratings in daily business of a bank is one of the most important minimal requirements for internal rating based approach application. Internal rating based approach is a significant in the process of validation and measurement of credit risk after Basel I approach.

Keywords Bank • Credit risk • Credit risk management • IRB (internal rating based approach)

1 Introduction

The main precondition of credit risk management on the portfolio level is to be aware of the fact that all credits potentially can become "bad" during the time (Maskara and Aggarwal 2009). According to that banks should maximize banks risk-adjusted rate of return. Because credit risk is one of the largest problems in bank performance they should maintain credit risk exposure within acceptable parameters, i.e. long-term success of all credit institutions depends on effective credit risk management (Vašiček et al. 2013). Banks should identify and analyze existing and potential risks in certain product in order to perform efficient credit risk management (Broz Tominac and Posavec 2012). If banks apply standardized approach all parameters needed for credit risk estimation are provided by external rating

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agencies and if they apply internal ratings based approach they measure those parameters on their own (Vašiček et al. 2013). Key characteristics of credit capacity of debtors when determining capital requirements can be quantified. IRB approach is the main news from Basel II standard.

2 Definition and Coverage of Credit Risk

Credit risk is significant for banking and old as the banking itself (Bodla and Verma 2009). Credit risk arises from probability that the debtor will not be able to settle its obligations. Any nonpayment or rescheduling of any promised payments or from credit migrations of a loan gives rise to an economic loss to the bank (Schroeck 2002). The significance of credit risk as one of the largest risks in banks arises from the fact that in banks balance sheets dominate deposit-credit form of bank financial intermediation (Lastra 2004). There are different definitions of default but most internationally active credit institutions and credit institutions in European Union apply Basel definition (Bank for international settlements 2016):

- Material exposures that are more than 90 days past due, or
- Where there is evidence that full repayment of principal and interest without realization of collateral is unlikely, regardless of the number of days past due.

The source of credit risk is the weakening of debtor's credit ability which leads to delay in obligation settlement or total failure in obligation settlement. That means a loss for a bank and is calculated as a product of the due amount, number of days of delay and market interest rate. Banks are dealing with losses on daily basis and that is the reason why losses should be recognized, measured and implemented in credit risk management models.

Since the credit risk is the most important for the most of credit institutions the goal of credit risk management is to maintain banks' exposure to credit risk according to bank's management parameters and adequate capital which leads to stability of bank and financial system on the whole. An identification and analysis of existing and potential risks that are present in certain product or activity are the basis for efficient credit risk management.

More than 80% of capital requirements of European banks are for credit risk (Jakovčević and Jolić 2013). For many banks loans are the highest source of credit risk and other sources of credit risk derive from other bank's activities. According to that banks affront with credit risk in different financial instruments including futures, swaps, bonds, options etc. In credit risk management banks are encouraged to use internal systems for credit risk estimation.

3 Approaches to Credit Risk Management

3.1 *Standardized Approach*

Standardized Approach is a first phase of adjustment to Basel II standard and to acquirement of conditions for IRB approach application. It is very similar to Basel I standard in terms of capital requirements calculation, classification of positions of risk weighted assets and application of fixed factors prescribed by supervisor. This approach is simple and suitable for those banks which want such a system of capital adequacy. The characteristic of this approach is that all the components are prescribed by supervisor, i.e. banks allocate prescribed risk factors depending on placement characteristics.

Elements that are equal at Basel I agreement and standardized approach of Basel II are based on fixed risk factors that are determined according to claim category and are prescribed by supervisor. Banks are obliged to apply those factors when calculating capital adequacy. Categories of claims that are defined in standardized approach comprise claims from state institutions, banks, companies, inhabitants and claims that are insured by real estate.

Novelty of Basel II approach is the possibility of risk factors determination on a basis of external institutions' rating for credit risk estimation. This capital standard allows and encourages application of credit rating from external institution such as Moody's and Standard & Poor's. Those institutions are chosen from national supervisor. Banks have to disclose what agencies are used and apply them consistently for all claim categories.

3.2 *Internal Ratings Based Approach*

Internal rating based approach is the main novelty of Basel II standard. Credit risk arises from the probability that the debtor will not be able to settle its liabilities. When applying internal rating based approach all exposures must be classified into different exposure classes such as corporate, sovereign, bank, retail and equity exposures (Saita 2007). Then for each of those classes following key components of credit risk should be defined:

1. PD—*probability default*,
2. LGD—*loss given default*,
3. EAD—*exposure at default*,
4. M—*maturity*.

The above components have direct impact on the capital requirements amount, i.e. the higher the components the higher capital requirements and vice versa.

3.2.1 Basic Internal Rating Based Approach

The most important novelty of Basel II is internal rating of placements. As it was already mentioned earlier at standardized approach all risk parameters are prescribed by regulatory body while at internal ratings based approach banks measure those risk parameters. In that way banks can quantify key characteristics of clients' credit ability when determining capital requirements. Risk components, risk factors and minimum capital requirements should be determined for every type of assets under internal rating approach.

According to internal rating system (further, IRB approach) bank classify placements in five basic categories considering risk characteristics (Martinjak 2004):

- Bank exposure to corporate;
- Bank exposure to sovereign;
- Bank exposure to other banks;
- Bank exposure to retail and
- Bank exposure to equity.

For every category bank determines key elements of IRB approach, i.e. risk components (internal or by supervisor), calculation of weighted assets (funds through risk components are transformed into risk weighted assets and tan into capital requirements) and minimum requirements (relating to standards which must be obtained by bank if they want to apply IRB approach).

By basic IRB approach it is important that bank gives its own estimation of just one parameter (probability default) while other parameters are prescribed by supervisor. For IRB approach credit institution has to procure the supervisor's permission. According to that IRB approach can be implemented gradually through different exposure categories inside of credit institution. For every exposure type bank estimates a probability default parameter on the basis of historical data and statistic models. There is a possibility that supervisor defines minimum values of that risk parameters for certain exposure types. Except probability default all other risk parameters inside of basic IRB approach (LGD, EAD, maturity) is defined by supervisor.

3.2.2 Advanced Internal Rating Based Approach

By advanced IRB approach all risk components are estimated by bank. Advanced IRB approach can also serve as an early warning signal and ensure the base for flexible business politic (Chorofas 2007). It is important to mention that Basel II allows advanced IRB approach only if rigorous qualitative and quantitative requirements are satisfied (the accent is put on banks' ability to rank and quantify risk on consistent and confident way).

It is necessary to ensure such a risk estimation system which will enable appropriate estimation of debtor's characteristics and transactions, appropriate

differentiation of risk and accurate and consistent quantitative risk estimation as well as the integrity of critical input data. Those inputs should arise from bank's system which is used in everyday business not only for estimation of regulatory capital. A bank has to have unique system and use its results both for supervisor and for making business decision. Internal rating system must be approved from supervisor (Konovalova 2009).

In order to pass on advanced internal rating based approach banks have to prove that they understand the risk they are exposed to, that are familiar with approaches through which risk can be mitigated and how to manage it in whole. Some of the encouragements for implementation of IRB approach are profitability increase because better risk understanding enables better risk and capital management, then internal models of credit risk parameters which enable implementation risk based differentiated interest rates and on risk based efficiency measures which finally lead to improvement of external rating of a bank through available and cheaper capital.

All above mentioned contribute to increase of bank competition as well as to decrease of total level of systemic risk on the level of individual bank and banking system in a whole. However, by numerous advantages there are also some disadvantages of internal rating system. Prior that is a procyclicality of capital requirements and with deterioration of economic situation the client's rating is deteriorated too. That leads to deterioration of risk parameters and increase in capital requirements. And all that in circumstances when capital is hardly achievable. It is necessary, therefore, to work on decrease of capital requirements procyclicality influence which is one of the tasks of Basel III standard. That means that bank creates reserves of capital in favorable economic conditions which can be used to certain level in unfavorable periods. In average bank can achieve stable capital adequacy adjusted with portfolio risk.

There are numerous benefits for banks that are going in direction of advanced internal rating system application because the efficient allocation of capital became a key comparative advantage for financial institutions (Tschernjak 2004). Benefits are even higher when comprehensive and transparent decisions based on risk are implemented.

After adequate abilities are developed and form the side of banks and form the side of supervisor some banks will be enabled to switch on advanced internal rating based approach. However, small banks should direct their resources on understanding of basic approaches and identification of minimum requirements.

Because the fact that well established risk management system is a precondition for implementation of advanced approach, banks are asked for evaluating of different possibilities. Banks that perform on international level should strive to improvement their risk management systems and pass on advanced approaches because they will need to compete with international banks which already apply such systems. But an application of advanced approaches claim an application of superior technology and information systems which enables banks quality data collecting and detailed analysis of data. But, despite banks expect lower capital

requirements when applying advanced approaches they should be ready to provide more information.

Possible impact on bank's decision about pass on advanced internal rating approach is fact that implementation of advanced approaches when applying Basel II isn't obligatory for small banks that perform on traditional means and perform on regional base; implementation of advanced approaches shouldn't be understand as a trend and implementation of basic approaches shouldn't be considered inferior; every bank's decision about pass on advanced approach has to be well considerate, concise decision after taking into consideration bank's capacity for capital requirements calculation and bank's capacity when maintaining risk profile and consequently capital levels under impact of different scenarios (especially stress ones); preconditions for pass on advanced systems, well established, efficiency infrastructure of IT, cost-benefit analysis of advanced approaches, availability of appropriate acquirements and capacities and well established, efficient and independent mechanisms of internal control as a support to risk management system.

Law should demand minimum number of risk categories as well as minimum obligatory criteria which should be integrated in internal rating system from banks. Regulatory body should evaluate internal rating system, i.e. determine compatibility with the nature of bank performance and complexity.

4 Results of Empirical Research

In order to research how internal ratings system outputs should be used, where risk parameters are used and to investigate if Croatian banks have developed rating culture a questionnaire was sent to Croatian banks. The researched population is ten banks in Croatia.¹ There are three hypothesis of the impact of internal rating system application on credit risk management in banks. Z Test of Hypothesis for the proportion was carried out.

Hypothesis 1 *Internal rating system outputs should be used only for capital requirements calculation.*

Two out of ten banks responded positively while eight responded negatively. It is assumed that the majority of banks consider that the outputs of internal rating system outputs should be used only for capital requirements calculation. The test on assumed value of proportion in program PHStat2 is used. It is assumed that half of the banks are using internal rating system outputs only for capital requirements. Test hypothesis are following: $H_0: p = 0.50$ and $H_1: p \neq 0.50$. According to the results of test hypothesis given in Table 1 zero hypothesis can't be rejected with significance level of 5%. Concrete, with that level of significance the majority of

¹Because of data protection there aren't any bank names in this paper.

Table 1 Usage of internal rating system outputs

Null hypothesis p=	0.5
Level of significance	0.05
Number of successes	2
Sample size	10
Intermediate calculations	
Sample proportion	0.2
Standard error	0.1581
Z test statistic	-1.8973
Two-tail test	
Lower critical value	-1.9599
Upper critical value	1.9599
p-value	0.0577

Source: Author

banks consider that the outputs of internal rating system outputs should not be used only for capital requirements calculation.

If outputs of internal rating system should be used only for capital requirements calculation it could happened that intention for capital requirements minimization influences on risk parameters estimation. The use of ratings in daily activities implicates its use in all phases of credit process. The use of internal ratings in the process of placement approval usually includes determination of authorization level for approval but in accordance with the placement risk. Placements of lower risk can be approved by lower authorization levels while placements of higher amount and risk should be approved by higher authorization levels.

Hypothesis 2 *Risk parameters are used in credit products price calculation.*

Four from ten banks have answered true and six banks not true.

It is assumed that the majority of banks use risk parameters in credit products price calculation. The test on assumed value of proportion in program PHStat2 is used. It is assumed that most banks use risk parameters in credit product price calculation. Test hypothesis are following: $H_0: p \leq 0.50$ and $H_1: p > 0.50$. According to the results of test hypothesis given in Table 2 zero hypothesis can't be rejected with significance level of 5%. Concrete, with that level of significance the majority of banks do not use risk parameters in credit products price calculation.

According to the results of test hypothesis given in Table 2 zero hypothesis can't be rejected with significance level of 5%. Concrete, with that level of significance the majority of banks do not use risk parameters in credit products price calculation.

Risk parameters should be used for credit product price determination. That is the most important advantage of internal ratings. The price of credit products which depends on risk is fair because in terms when all debtors are paying the same interest rate, good debtors are actually subsidizing the bad ones (Jakovčević and Jolić 2013). Certain banks are determining prices by comparison with competition. But banks can have different affinity for risk taking and certain placement can lead to diversification in one bank but concentration of risk in other bank depending on portfolio structure.

Table 2 Usage of risk parameters in credit products price calculation

Null hypothesis $p=$	0.5
Level of significance	0.05
Number of successes	4
Sample size	10
Intermediate calculations	
Sample proportion	0.4
Standard error	0.1581
Z test statistic	-0.6324
Upper-tail test	
Upper critical value	1.6448
p-value	0.7364

Source: Author

Table 3 Rating culture in Croatian banks

Null hypothesis $p=$	0.5
Level of significance	0.05
Number of successes	2
Sample size	4
Intermediate calculations	
Sample proportion	0.5
Standard error	0.25
Z test statistic	0
Two-tail test	
Lower critical value	-1.9599
Upper critical value	1.9599
p-value	1

Source: Author

Hypothesis 3 *Croatian banks have developed rating culture.*

It is assumed that the majority of banks have developed rating culture. The test on assumed value of proportion in program PHStat2 is used. It is assumed that half of the banks have developed rating culture. Test hypothesis are following: $H_0: p = 0.50$ and $H_1: p \neq 0.50$. According to the results of test hypothesis given in Table 3 zero hypothesis can't be rejected with significance level of 5%. Concrete, with that level of significance half of banks consider that they have developed rating culture.

Rating allocation and internal rating system output application should be a part of business culture of credit institution. If employees understand outputs of internal rating systems, if rating is given to every debtor, if there is reporting about rating systems than there is a rating culture. But if ratings are just calculated and not used in business process which means that employees don't recognize the importance of ratings than rating culture doesn't exist.

5 Conclusion

According to research results about the impact of internal rating system application on credit risk management in banks majority of banks consider that the outputs of internal rating system outputs should not be used only for capital requirements calculation, majority of banks do not use risk parameters in credit products price calculation and the half of banks consider that they have rating culture. That means that majority of banks recognize the importance of internal ratings in daily business but are not using those in price determination. The main reason is because the most of Croatian banks doesn't apply internal ratings yet. Also, employees should learn how internal ratings can improve daily business in order to develop rating culture in banks. In order to strengthen financial system on local and on global level banks need to use more sophisticated methods of credit risk estimation. With such methods the level of regulatory capital will be adjusted with its risk profile. In that sense there is a lot space for progress in Croatian banks in future.

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Part II
Management and Marketing

Successful Practices of Russian Medium-Sized Enterprises

Ekaterina Nikolaeva and Dmitri Pletnev

Abstract The paper pays attention to an important issue—increase the success of medium-sized enterprises. On the basis of comparative analysis across sectors of economic activity (trade and construction) the most successful business practices are studied. Based upon the authors' methodology for assessing the success of small and medium-sized businesses an integral indicator of success has been identified, which allowed comparing the selected companies. Then the most successful enterprises (leaders of success) have been studied details by a number of characteristics: financial and operational. This eventually, helped to identify factors of success and to develop a portrait of the leader of success in the studied sectors. By means of an integrated description of the leaders of the success guidelines for similar medium-sized enterprises have been developed to enable them to improve their efficiency and to move into the rank of success.

Keywords Medium-sized enterprises • Business success • Success factors • Commerce • Construction • Success-leader

1 Introduction

Nowadays much attention is paid to the study of the problems of development of small and medium-sized businesses. There are certain problems in the focus of the literature: improving the efficiency of small and medium-sized business, choosing the form of state support, evaluation of different success factors of small and medium business. The study focuses on one of the important aspects of the functioning of small and medium-sized businesses—on its successful development. The most interesting research on the problems of the success of small and medium-sized enterprises proposed by Biro and Dudian (2016), Stonkutė and Vveinhardt (2016), Golja and Kontosic (2015), Toselli (2016), Voigt and Moncada-Paternò-Castello (2012), and Audretsch (2006). However, in this regard it is important and

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necessary to pay attention to the opinions of practitioners, describing small and medium-sized companies from the inside and probably more closely approach an understanding of the importance of various factors in achieving success.

Among them, we would like to highlight three studies which describe the most successful small and medium enterprises and explain the reasons for their high success. The first two are Simon (1996) and Simon (2009) in which German medium-sized companies (“hidden champions”) were analyzed. These companies have chosen a development strategy different from the traditional strategy for large corporations. Hidden champions have chosen a development strategy different from the traditional strategy for large companies. In the center of this strategy are attentive attitude to the employees and an aspiration to become the best in the production and promotion of a particular product or service. The third study belongs to Burlingham (2007) who aim to understand the causes of high market success of small US companies that have become well-known in certain spheres. The author points to a special “magic” inherent to these companies leaving outside attention an important from the point of view of the economy of the modern enterprise concept of profitability, growth and assets.

The aim of the study is to reveal the causes of the companies’ success working in the field of trade and construction (as most developed sphere in terms of the presence of medium-sized businesses). On the basis of previous studies Barkhatov and Pletnev (2014), Pletnev and Barkhatov (2016), containing an assessment of success and the selection of success leaders in the context of economic activities, a detailed analysis of these companies was carried out from the standpoint of factors that probably served as a reason for their high success.

2 Data and Methodology

At the preliminary stage of the analysis the integral indicator of enterprises success of two spheres of activity—trade and construction was evaluated. The methodology used here is the development of the authors and allows to take into account when assessing the success of number of important factors that in a better extent are able to describe the level of success of small and medium businesses. The integral coefficient of success includes such indicators as return on sales, return on assets, revenue growth rate, the duration of a company lifecycle. More information about this method is available in Pletnev and Nikolaeva (2015). The resulting success rate allowed comparing the enterprise and carrying out the grouping of companies, depending on the degree of business success. Thus, the first group of enterprises—a successful leader, have rate from 7 to 10, the second (successful enterprises)—from 5 to 7, and the third—unsuccessful venture—under 5.

In total, the analysis involved more than 4000 medium companies from various fields of activity. To the leaders of success 126 enterprises were attributed, accounting for just over 3% of the total sample. However, in this part of the study, we

focused only on two fields of activity and studied 41 medium-sized companies in detail.

Next, we have developed an algorithm analyzing the success of the leaders, which consists of three groups of indicators: industry features, operational features of the company and financial features of the enterprise. Within the analysis of industry characteristics for success leaders operating margins in the industry and industry growth are considered. Operational analysis of a company include such factors as: type of ownership, range of activity of the enterprise, market share, existence period, size of the authorized capital, number of employees. The analysis of financial factors was conducted in the following areas: assessment of profitability, liquidity, financial stability and economic activity of enterprises. Comparing leader's success rates with those of other companies in the industry (the analysis was conducted in the context of separate industry groups that allowed us to consider features of the industry), we were able to identify the characteristics of the most successful enterprises. It is worth noting that these characteristics significantly different from that of less successful companies in the industry and it is possible to make a portrait of success leader in every field of activity. During the investigation we used data provided by the information and analytical system FIRA.PRO (FIRA 2016).

3 Results

The group of commercial enterprises included the ones of wholesale and retail trade from the following subgroups: wholesale of industrial electric and electronic equipment, including telecommunication equipment; wholesale of other machines, devices, equipment of a common industrial and special purpose; wholesale of non-food consumer goods; wholesale of medical equipment and orthopedic products; wholesale of sugar confectionery, including chocolate, ice cream and the frozen desserts; wholesale of machines and equipment for agricultural industry; wholesale of other construction materials; wholesale of metals and metal ores; wholesale of soft drinks; other wholesale trade; Commercial enterprises work in low-profitable industries where return on sales and return on profit before the taxation are lower than average on economy. Also this field of activity in Russia can be characterized and as slowly developing. In most cases (27 entities) the growth rates of an industry are average or below average. The most interesting from the point of view of describing the features of the company are operating and financial indicators. The selection of commercial companies on the level of development is heterogeneous. More than a half (16 of 29) of the companies shows the dynamics of development significantly above industry average. While seven companies have dynamics of development at the level of an average in an industry, and other six companies developed in the analyzed period more slowly, than an industry on average. In half of the selection the lifetime of the enterprises is <10 years. Only 6 from 29 enterprises exist in the market a little more than 20 years.

The large number of commercial enterprises (50%) work with the minimum level of the authorized capital (10,000 rubles) or a little higher than this value. The rest of the companies are characterized by an impressive authorized capital (average value is 2,452,821 ruble median is 1,000,000 rubles). Also, commercial enterprises—the leaders of success can be characterized as the enterprises with relatively low number of employees (<100), that is explained by the peculiarities of the sphere. In most cases, the owners of the enterprises are individuals. In four companies the owner—other foreign company.

The analysis of financial parameters showed that at all commercial enterprises—the leaders of success—indicators of profitability are much higher than an average on an industry. That is in the conditions of the low levels of development which are observed in industry subgroups, our leaders are high-profit enterprises. In 20 of 29 companies the level of liquidity is higher than an average on an industry (in most of them—much higher than an average). At one third of the selection liquidity level at the level of industry average. Indicators of business activity of the enterprises are low. In most cases they were lower industry average (in 18 enterprises). In the rest 11 enterprises the level of business activity was above the industry average value. In this case, the factor “economic activity” can be deleted from the list of important and having a significant impact on business success. The enterprises—the leaders of success from the sphere of commerce can be referred to financially steady with confidence. Most of them (26 companies), have a high level of financial stability. In 23 companies the equity capital (share more than 50%) prevails in the capital structure. Nine of these enterprises use the insignificant size of borrowed funds (no more than 10%). At six companies prevails the loan capital in a capital structure (more than 50%). At four companies from them the loan capital practically in three times exceeds their equity capital. At the same time all enterprises had an acceptable level of covering of liabilities. According to the evaluation given by the information and analytical system FIRA.PRO, the leaders of success from the sphere of commerce in 2014–2015 had a rating of creditworthiness not lower than 44 (sufficient creditworthiness), at most of them the rating was up to 5 and above (high creditworthiness). It should be noted that at the majority of commerce enterprises this rating was low or wasn't assigned.

In 2015, in comparison with 2014 in the sphere of commerce only one from 32 enterprises lost its leading position. Half of the commercial enterprises of the sample showed a positive trend of development and the other half—negative. On the scale of activity all enterprises remains significant or major players in the market. Market shares also practically didn't change. Despite a slight decrease, all the companies had profitability above the industry average. Also the high level of liquidity remained. Level of business activity remained on average low. But some decrease in level of financial stability in comparison with a previous period is noticeable though in general all researched enterprises had high financial stability in 2015. In general, we can say, that the hypothesis of influence of liquidity and financial stability on success of business was also confirmed in commerce.

One more industry represented in the selection of the successful enterprises (though in much smaller quantity)—construction (12 enterprises—the leaders of

success). This sphere of activity is also characterized by the presence of many different industry subgroups among which: installation of metal building constructions; general construction works on laying of pipelines, communication and power lines; general construction works for construction of bridges, elevated highways, tunnels and subways; production of insulating works; general construction works; general construction works for construction of other buildings and constructions not included in other categories; installation of the construction woods and scaffolding; general construction works for construction of buildings; installation of the engineering equipment of buildings and constructions; installation of other engineering equipment; general construction works for laying of local pipelines, communication lines and power lines, including the interconnected ancillary works. Practically all the enterprises in our selection of the leaders of success work in different industry subgroups. That makes the comparison between them irrelevant. Therefore, in the research we carried out the comparative analysis of each enterprise with similar, within one industry subgroup. Indicators of development of industry subgroups which include the selected enterprises in the construction sector are low. In all cases the industry average profitability of profit before the taxation is lower, than on economy in general. Growth rates of an industry—below an average on the economy (at seven enterprises) or average (at five enterprises). Highly profitable in the analyzed period was only one subgroup—the installation of scaffolding, where the growth rate is much higher than the average on the economy.

On the scale of activity all analyzed construction enterprises—the leaders of success—are the biggest or significant in the industry. At the same time, as well as in the previous selections, the market share of most companies is low (up to 10%). The leaders of success from the sphere of construction are characterized by high dynamics of development—in seven enterprises the growth rates of the income are much higher than the industry average level. Other enterprises have the dynamics of development at the level of the average or slightly below average. Lifetime of the enterprises from this selection is also quite long—more than 10 years. However, there are a few enterprises among them, whose period of existence exceeds 20 years.

The size of the authorized capital of the majority (nine) enterprises is significant. Its average size was 2,221,903 rubles. All construction enterprises from the selection of the leaders of success have an average number of employees from 50 to 500 people. The owners are individuals at most of the enterprises (Limited Liability Company is a predominant form). In small percentage of companies (two companies) the owner is a legal entity. But it should be noted that all analyzed entities are created without participation of the foreign capital.

The feature of selection of the construction enterprises are high values of profitability of all researched enterprises—the leaders of success. On the level of return on sales and pre-tax profit the enterprises considerably exceed other enterprises of the industry. The similar tendency is also observed in liquidity indexes. Ten enterprises have liquidity level significantly above industry average, the others—average or slightly above average. A distinctive feature of the leaders of the construction sector is quite high (above industry average) indicators of business

activity, which is observed in 90% of cases. The remaining 10% of the enterprises have their business activity at the level of the industry average. Financial stability of the investigated companies is high—in most cases higher than the industry average. It is proved also by the company's capital structure. In 92% of the companies the equity share prevails in a capital structure and is not <70%. At the same time, the level of coverage of commitments at all companies is high. The rating of creditworthiness, assigned by the FIRA.PRO system, in two analyzed years (2014–2015) at all companies was not lower than 444 (relatively high creditworthiness). In general it is possible to tell that leaders from the sphere of construction had well both operational and financial indicators amid relatively unfavorable development of an industry in general, which probably allowed them to achieve high success indicators.

In the sphere of construction, all the leaders could keep their positions, though some of them had unfavorable development dynamics in 2015. The enterprises kept their market position and significant market shares. Most of them had a level of profitability above the industry average values. All companies have a high level of liquidity—significantly above the industry average. The indicators of financial stability are also significantly improved on average in the selection. In 100% of the enterprises they were much higher than industry average. But as for indicators of business activity the changes were heterogeneous—in half of the enterprises there was a growth, and at the others—decrease in this group of coefficients. That is, as practically in all the fields of activity described above, its liquidity and financial stability have significant effect on success of business of the construction enterprise. Table 1 presents the portraits of Russian medium-sized enterprises—the leaders of success.

The analysis medium-sized enterprises of two fields of activity on a number of selected factors allowed us to determine the similarities and differences between the enterprises of these fields. Most of the differences regard to financial parameters, though the studied companies of two fields of activity also have many similarities in these parameters. The main difference in the number of financial options is a factor “business activity”, which has been at a high level among the construction enterprises—a successful leader, but the leaders among trade enterprises are at the middle or below the industry average. This demonstrates low relevance of the parameter for trade enterprises, which is a bit of surprise, and contradicts the existing opinion about its importance. The rest of the financial parameters of all investigated enterprises are on a high level and have been marked as “important in achieving success.”

The operating options in two set of enterprises are also similar. Apparent difference is observed only in terms of “number of employees” which is low among the trade enterprises (up to 100 people), and on the average level in the construction—from 100 to 500 people). The studied commercial and construction medium-sized enterprises—success leaders have practically no differences according to such indicators as the scale of activity, the market share, the period of existence, the size of the authorized capital, the type of ownership and business

Table 1 The portrait of Russian medium-sized enterprises—the leaders of success (commerce and construction)

Success factor	Commerce	Construction
Activity scale	Significant and the largest in the industry	Significant and the largest in the industry
Market share (for the regional markets in which the company operates)	Up to 10% at the majority	Up to 10% at the majority, however, in the sample there are large players dominating in the market
Number of employees	Small (up to 100 people)	Medium (100–500 people)
Enterprise's life term	At the majority of long, more than 10 years (one third—more than 20 years)	Long, more than 10 years
Size of the authorized capital	At a half—significant: the average value 2,452,821 rubles, the median—1,000,000 rubles; at the remaining 50% of the enterprises—at the level of minimum	At the majority—rather high: the average value 2,221,903 rubles, the median—300,000 rubles.
Form of ownership	In most cases, the owners—individuals	In most cases, the owners—individuals
Legal form	Limited liability companies (25); joint-stock companies (4)	Limited liability companies (7); joint-stock companies (5), including one public
Profitability	Significantly higher than the industry average	Significantly higher than the industry average
Liquidity	At the majority—significantly higher than the industry average; One-third of enterprises—at the level of the industry average	Significantly higher than the industry average;
Business activity	Average and below the industry average	At the majority—higher than the industry average
Financial stability	High financial stability; in the capital structure of most enterprises the equity prevails; acceptable level of coverage of commitments	Above the industry average; in the capital structure of the majority of enterprises equity (not <70%) prevails; a high level of coverage of commitments
Creditworthiness	High creditworthiness	High creditworthiness

Source: Compiled by the authors based on ROSSTAT data provided by FIRA.PRO

organization. It is a testament to sample homogeneity and speaks in favor of the importance of business operating performance in achieving their success.

Figure 1 presents a comparative analysis of the key financial parameters of the medium-sized enterprises by field of activity. It shows the percentage of medium-sized enterprises—success leaders with the indicators of liquidity, business activity and financial stability higher than the average.

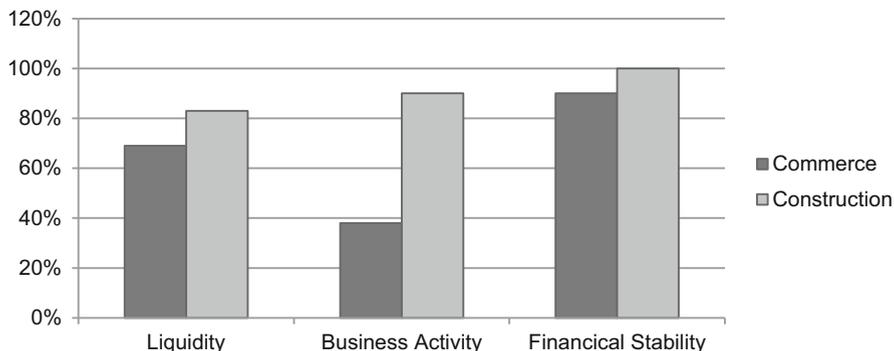


Fig. 1 Comparison of shares of medium-sized enterprises—the leaders of success with financial indicators higher than the industry average (on industries)

The figure shows that the best values reached by the success leaders of two fields of activity on the indicators of financial stability. As mentioned above, there is very low level of business activity in the sphere of trade. It should also be noted that investigated companies of the construction sector have better development in all parameters than the similar companies from the sphere of trade in the analyzed period. The empirical analysis of medium-sized enterprises is based on data on their financial and operating results obtained from the analytical FIRA.PRO system, which also makes it possible to compare the performance of individual companies with the average values, which proved to be very valuable in our investigation.

4 Conclusion

We investigated two key Russian economy spheres of activity—trade and construction, which are radically different from each other in many internal parameters such as market conditions, value of state support and the level of development in the industries. Construction and commercial enterprises mostly operate in industries with low return and low growth rates. The studied group of operational factors allowed us making a typical portrait of successful medium enterprise in both fields of activity as almost in all cases were observed similar characteristics: the life term, number of employees, ownership, scale of activity, the size of the authorized capital [the same result is received also for other fields of activity—industrial production and agriculture (Nikolaeva and Pletnev 2016)].

That is the investigated operating parameters are important characteristics of medium-sized companies—the leaders of success in the sphere of trade and construction. This “consensus” is observed along the group of financial factors. With the exception of one—business activity—all the financial factors in successful enterprises have been at a relatively high level, and some of them were significantly superior to the industry average values. Thus, this can be regarded as necessary and

sufficient condition for medium-sized enterprises to achieve success. And, of course, the rest of the enterprise with a lower level of success should pay more attention to these indicators and achieve their increase as high as possible.

The analysis held in this work is the logical continuation research on the measuring the success of small and medium-sized businesses. It makes possible to solve the intermediate task—to identify the most important factors of success for a medium-sized enterprises from various sectors of economic activity. Further, on the basis of the study is supposed to develop a model of successful small and medium enterprises in the Russian economy.

Acknowledgement The study was performed at the expense of a grant of the Russian Science Foundation (project № 14-18-02508).

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The Impact of Organizational Politics Fact on the Act of Social Media Usage in Higher Education Institutions

Erdal Şen, Emel Tozlu, Sibel Aybar, and Hülya Ateşoğlu

Abstract In today's business life experiencing unspecific, complicated and continuous changes, the climate is getting more and more political for the organizations. The employees to display behaviors after comprehending the organizational climate in a political manner are becoming one of the critical elements of the organizational climate. It is possible to say that the employees that take part in any section of the organization are interested in such activities. Within this context, the political behavior, which can be named as manipulative behaviors exhibited deliberately by individuals in order to actualize their expectations, is only a small part of the organizational politics fact. The political behaviors are explicitly exhibited in certain organizations, while they develop esoterically in other organizations. Therefore, an individual starts to exhibit political behaviors once he/she realizes that the organization is political, and then this turns into a cyclical action due to the interactions among the employees. In this context, it can be clearly set forth that the organizational politics fact redounds up the personal behaviors in an individual's life. After the massive development in technology, social media has turned into a platform on which an individual reflects his/her inner world by sharing his/her emotions, situations and thoughts on a daily basis. In this study, the objective is to reveal the importance concerning the impact of organizational politics perception on individuals' social media usage on the basis of higher education institutions, based on the current literature. The quantitative data shall

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be subjected to evaluation in line with survey study by carrying out a literature review using qualitative method in this research.

Keywords Perception of organizational politics • Social media • Higher education

1 Introduction

Being political and exhibiting political behaviors is one of the imperative facts in organizational life, just like in life itself. This is, in fact, more prominent in today's world. The climate is getting more and more political for organizations trying to continue their existences while being continuously forced to change in an environment that is becoming more uncertain and complicated day by day. Considering this uncertain and complicated climate plus the efforts of organizations trying to carry out activities with limited resources, it is now a must for the individuals to utilize the power and benefit from the manipulation tools. Each and every individual in the organization desiring to possess more resources in line with their own expectations and wishes makes the individuals confront with each other concerning the sharing of budgets, tasks and liabilities, salaries and promotions, thus creating an inevitable power struggle. Therefore, the organizations having individuals who wish to gain more power and earn more in their structure are becoming open to political processes. It is not possible to say that each and every organization or individual is political on the same level and manner though accepting that the politics is widely recognized among the organizations. It can be said that this situation shows alterations based on many factors arising from both the individual and the organization. In this manner, the individuals and organizations are either becoming politicized, or paying less concern in politics. In certain organizations, "the fact of politics" is taken quite naturally and ordinarily, thus being exposed explicitly; while it is recognized as "unacceptable" in other organizations, thus being carried out covertly. In some other organizations, the political activities are not deemed required or they are being carried out with very low frequency and level since certain regulations are fully performed in order. At this point, it can be said that the political perceptions of individuals, as well as the political behaviors they exhibit do have impacts on the formation of politics in organizations and the functioning of the politics. Because the way and the manner through which the political climate is formed in the organization, including the way of development and the manner it is being concluded are structured in line with the thoughts and behaviors of the individuals. It can be said that there is a mutual interaction between political perceptions and behaviors of the individuals towards the organization and other individuals. This situation affects the political climate in the organization, while being affected itself by this climate. In that, when the regulations and practices of the organization concerning the individuals and the organization itself, as well as the thoughts and behaviors of other individuals within the organization are perceived politically, it is possible for these perceptions to be concluded with certain

political behaviors. Similarly, it sounds meaningful to say that the political behaviors exhibited within the organizations create a political climate in the organization by affecting the perceptions of the individuals under the same manner.

2 Organizational Politics Fact

Concerning the formation of a political climate in the organization and the ongoing process, the most important point is the perception manner by the individuals or groups within the organization for the attitudes and behaviors of the organization and employees. In the process that an individual perceive the climate as political, it could have an impact on the formation of inter-organizational policies regardless of the existence of politics in the organization (Buenger et al. 2007). At this point, it is not a determinative fact to determine whether the political behaviors are efficiently exhibited within the organization, or not, since the individual would shape up his/her behaviors, thus making the climate politically, if he/she recognizes the climate as political. In conclusion, it is the situation whether the climate is recognized as political, or not, rather than the political behaviors, concerning the formation of a political climate. Perceptions of organizational politics, defined as “A subjective interpretation of the working environment as represented by the masters and colleagues exhibiting political behaviors with organizational practices incentivizing political behaviors” (Harrell-Cook et al. 1999, p. 1095).

There are many definitions concerning the term organizational political behavior in the literature. These definitions approach the political behavior in terms of both positive and negative aspects for individuals, groups and organizations. The essential point in this matter is the meaning as attributed to the behavior—that is the way of thinking of the individuals on this matter—rather than exhibiting the behavior. The political activities in the organization may be manifested explicitly and objectively, also sometimes, they can be formed covertly and symbolically. Therefore, the way of perception for the behavior differs from individual to individual, and situation to situation. When an activity or an event—as carried out by the organization in complete goodwill—is misperceived by an employee, after then it is his/her own reality that has the biggest impact, rather than the one which actually exists.

In some cases, It is vitally important to evaluate the behaviors diversely based on the perception of individuals, rather than the tangibility of the behaviors exhibited by individuals in the organization, in terms of understanding the organizational politics. Because, these perceptions to emerge in a positive or negative form will have an impact on the reactions of the employees to their managers, colleagues and organization, as well as the expectations towards their jobs and the organization, and the conclusions to be made concerning the job, thus having the capacity to shape them up, as well. When considered from this point of view, it is possible to say that the way of formation of an individual’s political perception for the climate, would shape the behaviors of this individual, and therefore his/her working life and organizational life, as a whole.

When organizations with certain objectives, certain activities and employees to achieve these objectives exhibits political behaviors due to the fact that it prefers to achieve its goals by utilizing its resourced in the most efficient way possible, it causes them to be recognized as political organizations. On the other hand, those trying to achieve individual or organizational objectives are directing others' behaviors or turning the table on themselves via various affection tactics. In this situation, the behavior exhibited deliberately by the employees in order to gain power or to get a more powerful position within the organization forms the organizational politics. Sometimes these political matters result in positively on businesses' favor, however they may also result in negatively since they bring organizational structure's deficiencies to light. Nevertheless, it can be suggested that the organizational structures are political structures based on the aforementioned information (Stewart 1972).

2.1 Political Behavior

As old as organizational history, the politization and political behavior existed in each and every period, protecting its sustainability by being amended in time. For instance, the political behaviors were quashed for harmonization during the periods of time when the outer and inner cyclical situation were languished. On the other hand, the organizations with less administrative layers under today's relatively more complicated and uncertain working conditions are elasticizing its structure in order to comply with its environment, thus applying decentralization practices. In line with this aspect, the political behaviors and political climate are becoming exalted values as basic struggle line and control mechanism, as referred by Toffler (1990). In fact, many organizations carry out political action committees (PAC) or special training programs, which legalize the political behaviors and power games, as well as canalizing individuals' perceptions and impressions into this direction (Reitz 1987).

The most meaningful and important matter for organizational politics are the behaviors exhibited deliberately and in a planned way by the individuals, since the behaviors deliberately exhibited by the individuals for their own benefits in order to achieve their objectives and expectations within the organization generate the political behaviors. The fact that the political behaviors are inevitable in the organizations, as well as the desire to achieve the objectives and expectations by impressing others subsistent in the political behavior are quite significant in terms of understanding the efficiency and progress of the individuals and organizations. In that, the political actions do have importance in order to display why and how the organizational decisions are taken, how the cooperation with and support from the subordinates, superiors and colleagues are provided, the reason why certain individuals support certain individuals and groups in the organization and why they do not do the same for others, and whether the strategies and policies are applied efficiently, or not. The political behavior is defined follows: the employees to

control their prospective behaviors by prioritizing their own benefits over the organizational benefits while carrying out organizational activities, and to utilize strategically all the resources of the organization in order to result in on their own favor, as well as benefitting from impressing tactic (Ferris et al. 1989).

Ferris and Kacmar (1992) claimed that the organizational climate to be perceived as political would cause the employees to exhibit unexpected reactions. They also argued that an employee recognizing an organization as political would prefer either to stay out of the organization, or to take part in the organization by isolating himself/herself from the political behaviors, or personally to exhibit political behaviors.

Based on this matter, it can be said that there is a mutual and bilateral relation between the organizational politics perception and political behavior. So it can be clearly said that this cyclical process effecting each other regularly to be sustainable is a sustaining element in terms of politization of organizational climates, and that both employees and the directors support the idea to turn the organizational climate into political (Bursali and Bagci 2011).

3 Social Media

We are in the era of information, communication and technology, and the innovations in this field, including their impacts comprise of the study area of the relevant sciences. Analyzing the definitions made concerning the social media, it can be defined as online interactive communication channels connecting the communities to each other (Kalafatoğlu 2011). Within the basis of the term “Social Media” can consist the terms “communication” and “sharing” (Hatipoğlu 2009). The communication in social media is through one person to another or one person to hundreds, thousands or millions. In this type of communication, it is the information interchange among such social units as individuals, groups and organizations that is in question (Sabuncuoğlu and Gümüş 2008). This media of freedom is not only for individuals’ daily news, information or communication, but rather it is for the participation of those individuals in political, ideological, economic, cultural etc. It is an undeniable fact that this new media order has a structure that is an influencing and widely and quickly spread. It is a media on which there is no editor—apart from himself/herself—while publishing the news and no self-censorship is applied. A platform on which there is no possibility of denial for publishing of your written materials and you’re not fired. The new media network is absolutely a movement arising from the bottom (base). It is a revolutionary fact rebelling against the dominant media conception and traditional system. Small keyboard poundings in the bottom are, in fact, enough to bother those in the top (Engin 2011).

In parallel with the increase in the number of internet users, the social media websites started to develop like a flash within the latest decade, therefore the number of their users are increasing day by day. The percentage of computer

usage are 55% and 56% among the age group 16–74, respectively, in April–2015. This ratio is 64 and 66% for men, while it is 46 and 46% for women. The computer and internet usage ratios were 53 and 54% in 2014. The percentage of buildings having internet Access in Turkey was 69% in April–2015 (TUIK 2014). According to the internet usage research published in Business Wire; the number of internet users using the social media was 373 million in 2007, while it was over 600 million in 2009. This number is equal to one-third of the whole internet users (Odabaşı and Odabaşı 2010). Taking the internet usage objectives into consideration, 81% of the internet users used the internet for creating a profile on social media, sending messages or sharing photos, etc.; 70% for online news, newspapers or journals, 66% for searching medical information, 62% for sharing their own materials like articles, images, photos, videos, music, etc. on a website, 59% for searching information about goods and services (TUIK 2014). The social media appears as the most important communication tool used today. Requiring low-budget, spreading the information fast, currency, having a warm environment, providing the opportunity to recognize the target group, as well as requiring no agent for communication makes the social media more powerful.

On the other hand, when the report concerning the damages that the organizations may be exposed to as a result of miss-use of social media regulated by Symantec with a research company named “Applied Research” is analyzed, miss-use of social media may cause more than \$4,000,000 in average annually (Symantec 2011). The organizations determined the social media based risks as following:

- The employees sharing too much information (46%);
- Inter-corporate confidential being lost/disclosed (41%).
- The brand image being damaged (40%),
- Being exposed to more and more lawsuits (37%),
- Malicious software (37%),
- Violation of regulatory rules (36%),

Additionally, 28% of the companies think that the social media may cause damage on the brand image and customer loyalty according to the report. Annual average cost of brand image damage is determined as \$683,496, and 27% of the companies claim to lose organizations, customers or employees because of social media, while 25% of them stated that social media causes direct revenue loss, which was determined to be \$619,360 on the report. The lawsuit costs caused by social media is \$650,361 on average (Symantec 2011) Hosting many events in today’s world, the social media plays an active role in many of the social events. Since the social media possesses the characteristic to provide a freedom for the user, the individuals are encouraged by this to achieve their goals, as well as using having a desire to use this media more efficiently. This new media is not only bringing individuals, but it also caused the organizational communities to be formed with the same objective. It created an environment that connects social movements to each other, thus accelerating the process. These movements generated a media on which

their own news and details on what they were/are/will be doing are shared with the public (Engin 2011).

4 Objective of the Study

As in all the foundations, the existence of organizational politics fact manifests itself in higher education institutions, as well. The current literature points out that the organizational politics may direct the employees’ behaviors. Therefore it can be clearly discussed that the behaviors of academic members working in higher education institutions concerning the social media usage might be affected. This situation comprises the basic hypothesis of this study. Ferris and King (1991) defined that it may create an environment for unexpected reactions by the employees in the event that the organizational climate is recognized as a political climate by the employees. They also claimed that an employee recognizing an organization as political would prefer either to stay out of the organization, or to take part in the organization by isolating himself/herself from the political behaviors, or personally to exhibit political behaviors. The objective of this study is to determine whether the social media usages of academic members are affected by the organizational politics fact in higher education institutions, or not. In line with this matter, this research is centralized on the following hypotheses (Fig. 1):

Hypothesis 1 *There is a substantive relation between the following factors: organizational political perception, and political usage of social media in higher education institutions.*

Hypothesis 2 *There is a substantive relation between the following factors: organizational political perception, and neutral usage of social media in higher education institutions.*

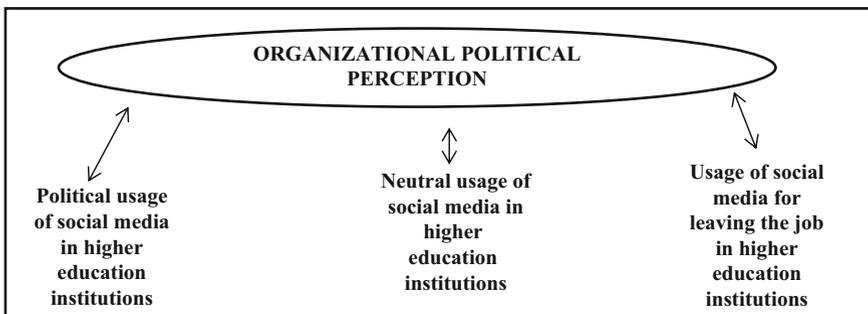


Fig. 1 Research model

Hypothesis 3 *There is a substantive relation between the following factors: organizational political perception, and usage of social media for leaving the job in higher education institutions.*

5 Sample and Methodology

In this study carried out to determine whether the social media usage of academic members are affected by the organizational politics fact in higher education institutions, or not, survey practice was chosen as quantitative method. The sample of the research comprises of academic members working in foundation universities in Turkey. Online survey method was preferred for the survey practice. 150 survey forms that are suitable to be used in the research were obtained within the framework of this scope. The information received via the survey forms was transmitted to the statistics package program “SPSS for Windows 21.0”, thus being evaluated with this program.

6 Research Data and Findings

When the participant distribution by gender is analyzed, 45% of the participants is female (68 in number), while 55% is male (82 in number) in total of 150 participants (Table 1).

According to Table 2, 87 of 150 (58%) participants answered the question as “Bachelor’s Degree”, 34 of 150 (23%) participants answered the question as “Master Degree”, and 29 of 150 (19%) participants answered the question as “Ph. D.”

112 of 150 (75%) is in the age group between 25 and 29, 18 of 150 (12%) is in the age group between 30 and 39, 8 of 150 (5%) is in the age group between 40 and 49, and 12 of 150 (8%) is in the age group of 50 and older (Table 3).

Table 1 Participant distribution by gender

Gender	Number	Percentage
Female	68	45
Male	82	55
Total	150	100

Table 2 Participant distribution by educational background

Educational background	Number	Percentage
Bachelor’s degree	87	58
Master degree	34	23
Ph.D.	29	19
Total	150	100

Table 3 Participant distribution by age

Age group	Number	Percentage
Between 25 and 29	112	75
Between 30 and 39	18	12
Between 40 and 49	8	5
50 and older	12	8
Total	150	100

Table 4 Participant distribution by income status

Income status	Number	Percentage
Between 1000 and 2000 TRY	82	55
Between 2000 and 3000 TRY	40	27
Between 3000 and 4000 TRY	19	13
4000 TRY and higher	9	6
Total	150	100

When the participant distribution by income status is analyzed, 82 of 150 (55%) is in the group between 1000 and 2000 TRY, 40 of 150 (27) is in the group between 2000 and 3000 TRY, 19 of 150 (13%) is in the group between 3000 and 4000 TRY, and 9 of 150 (6%) is in the group of 4000 TRY and higher (Table 4).

When the data in the answers given by the research participants working as academic members in higher education institutions to the “Organizational Political Perception” scale designed by us is analyzed, it can be clearly said that majority of the participants do have a sense for the universities they’re currently employed in to have a built-in political perception (Table 5).

According to Table 6, a certain percentage of the participants state that they use their social media profiles politically as per the organizational political structures of their institutions.

Table 7 presents the answers given by the research participants working as academic members in higher education institutions to the “Neutral Usage of Social Media in Higher Education Institutions” scale. A certain percentage of the participants state that they use their social media profiles neutrally as per the organizational political structures of their institutions.

When the data in the answers given by the research participants working as academic members in higher education institutions to the “Usage of Social Media for Leaving the Job in Higher Education Institutions” scale is analyzed, the certain percentage of the participants state that they would use their social media profiles in order to leave their jobs against the institution as per the organizational political structures of their institution (Table 8).

According to Table 9, there is a positive and substantive relation between the scores received from organizational political perception factor and the factor for political usage of social media in higher education institutions ($r = 0.670$; $p < 0.05$). At this stage, it is accepted as H1. By looking at the data obtained

Table 5 Frequency values of the participants as per the organizational political perception

	Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly disagree (%)	Average
I think that the University in which I'm currently working evaluates its academic members as per their private lives	6.3	17	21.3	37.3	18	3.44
I think that the University in which I'm currently working evaluates its academic members as per their political opinions	7.7	11.7	14	39.3	27.3	3.67
I think that the University in which I'm currently working evaluates its academic members as per their ideologies	9.7	14.7	10	37.7	28	3.6
A new employed member can comprehend people not to contradict within only a few months in the University I'm currently working	10.3	21	27.3	22	19.3	3.19
There is a sustainably efficient, yet not-easy-to-overcome group in the University I'm currently working	14.7	18.3	15	28	24	3.28
In spite of the fact that the university that I'm currently working in applies in-house incentive policies fairly, the way-of-usage for these policies are manipulated by the directors, thus being, in fact, not fair	10.3	20	21.7	32.3	15.7	3.23

Table 6 The frequency values for the participants concerning the scale "political usage of social media in higher education institutions"

		Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly disagree (%)	Average
Political usage scale of social media in higher education institutions	Sometimes I share contents which the directors of University in which I'm currently working may like, via my personal social media profile	11.9	18.8	21.8	22.8	24.8	1.36
	I believe that the content that I share via my personal social media profile is the indicator of my future for the University in which I'm currently working; therefore I never share anything against the University, even if it is true	27.7	15.8	19.8	20.8	15.8	2.19
	I never participate in arguments via social media concerning the University in which I'm currently working, rather I share contents for the favor of University. In the end, it is the administrative board of University seeing this content, as being shared	29.7	9.9	12.9	24.8	22.8	1.99

Table 7 The frequency values of participants concerning the scale “neutral usage of social media in higher education institutions”

		Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly disagree (%)	Average
Neutral usage scale of social media in higher education institutions	I deliberately do not share any content via my personal social media profile (due to the directors of University in which I'm currently working)	13.3	22.3	28.7	22.3	13.3	3
	I only use the social media to check other profiles based on the negative situations my colleagues experienced in the University in which I'm currently working	8.7	24	28.7	21.7	17	3.14
	I only use the social media to check other profiles based on the negative situations my colleagues experienced in the University in which I'm currently working, thus not sharing any content	18	30.6	12.0	25.3	12.0	3.15

Table 8 The frequency values of participants concerning the scale “usage of social media for leaving the job in higher education institutions”

		Strongly agree (%)	Agree (%)	Neither agree nor disagree (%)	Disagree (%)	Strongly disagree (%)	Average
Usage scale of social media for leaving the job in higher education institutions	If, one day, I decide to change my job I’m going to share any and all the deficiencies of the University via my personal social media profile	9.7	52.3	7.7	6	4.3	4.18
	If, one day, I decide to resign, I’m going to share any and all the deficiencies of the University via my personal social media profile	27.7	34	24	10	7.3	3.59
	If, one day, I realize that I’m going to be fired I’m going to share any and all the deficiencies of the University via my personal social media profile		19.3	11.3	8	9.3	3.87

from the survey study, the more the organizational political perception raises, the more the political usage of social media gets.

There is a positive and substantive relation between the scores received from organizational political perception factor and the factor for neutral usage of social media in higher education institutions ($r = 0.760$; $p < 0.05$). At this stage, it is

Table 9 Pearson product moment correlation analysis results in order to determine the relation between the scores in organizational political perception and the factor “political usage of social media in higher education institutions”

Organizational political perception	N	r	p
Political usage of social media in higher education institutions	150	0.670	0.000

Table 10 Pearson product moment correlation analysis results in order to determine the relation between the scores in organizational political perception and the factor “neutral usage of social media in higher education institutions”

Organizational political perception	N	r	p
Neutral usage of social media in higher education institutions	150	0.760	0.000

Table 11 Pearson product moment correlation analysis results in order to determine the relation between the scores in organizational political perception and the factor “political usage of social media for leaving the job in higher education institutions”

Organizational political perception	N	r	p
Political usage of social media for leaving the job in higher education institutions	150	0.580	0.000

accepted as H2. By looking at the data obtained from the survey study, the more the organizational political perception raises, the more the neutral usage of social media gets (Table 10).

According to the analysis results (Table 11), there is a positive and substantive relation between the scores received from organizational political perception factor and the factor for neutral usage of social media in higher education institutions ($r = 0.580$; $p < 0.05$). At this stage, it is accepted as H3. By looking at the data obtained from the survey study, the more the organizational political perception raises, the more the neutral usage of social media gets political usage of social media for leaving the job gets.

7 Conclusion

When the current data is analyzed, it can be interpreted as following: The social media has both positive and negative aspects on the organizations. The ethical fact is the basis for negative aspects. The findings obtained thanks to the research data set forth the following for higher education institutions:

- The more the organizational political perception raises, the more the political usage of social media gets,
- The more the organizational political perception raises, the more the neutral usage of social media gets,

- The more the organizational political perception raises, the more the neutral usage of social media gets political usage of social media for leaving the job gets.

Based on the data emerged from this study, it can be clearly said that the term “organizational politics fact” is of vital importance for higher education institutions. The results obtained from this study reveal that it is a must to destroy the negative organizational political perception that may be formed on the academic members in the institution, thus becoming the most important matter for increasing the quality in the universities. Otherwise, it can be clearly said that the academic members will turn into human communities, with no freedom of thought and speech, feeling an obligation to be on the institution’s directors’ board side—even currently being on their side, or with the thought of the possibility to be fired after speaking against the institution, becoming introverted, with no capacity to produce anything apart from starting and ending the working day.

This is a massive obstacle against the development of higher education institutions, improving the educational standards, carrying out scientific studies, etc. Naturally, it can be clearly said that it is a must for administration models of the higher education institutions to possess a structural characteristic, which differs it from the other business management models. Therefore, we confront with an incontrovertible fact of the necessity to re-approach to the term “organizational political perception” in higher education institutions for positivization, as well as analyzing the communication practices of universities’ board of directors with the academic members.

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Relational Capital of Enterprises: Identification of the Phenomenon

Anna Walecka

Abstract Today's world is based on relationships. Every organization—being an open system—transfers tangible and intangible assets to its business environment. In order to stay in the market, it has to establish various business networks—with customers, suppliers or competitors since they are not interested in a one-off, accidental transaction, but in long-term cooperation based on trust. Maintaining good relationships with customers and contractors is a prerequisite for management rationality. Identifying the needs of contractors and customers is necessary for them to be addressed properly, and for the sound relationships to be established and maintained. Maintaining good mutual relationships between employees and customers allows, in turn, to better identify the needs and tastes of the latter to maximize their fulfilment. Good relationships foster understanding and cooperation between entities, they are a source of creativity, innovativeness and entrepreneurship, as well as of a broadly defined activity. This entails increased loyalty towards the company on the part of its contractors, as well as enhanced customer satisfaction. Due to that, the company has an opportunity to build a competitive advantage. This is a survey study. It discusses the literature on the relational capital of an enterprise.

Keywords Relational capital enterprises • Intellectual capital

1 Introduction

Contemporary organizations, in order to be successful, need to have an ability to quickly introduce changes in an organization in response to permanent changes in the environment.

Therefore, modern management must be multi-dimensional, and its “human dimension” will be gaining in importance. It seems that the era of intellectual

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resources of an organization seen as a factor determining its sustainability, development and success has come (Piasny 2013).

The intellectual resources of an enterprise include structural and human resources. It is people and their broadly defined relationships with the environment that are an opportunity for the market success of an organization. Currently, enterprises are not interested in one-off, accidental transactions, but rather in long-term cooperation. It pertains both to liaising with customers, suppliers or competitors.

Having considered the above, the objective of the study is an attempt at answering the question whether a high level of relational capital may be the precondition of maintaining a competitive advantage. This is a survey study. In order to meet the set objective, it discusses the literature on the relational capital of an enterprise.

2 The Intellectual Capital of an Enterprise

In the current knowledge-based economy, intellectual capital plays a crucial role in determining the directions for an organization's activity. The literature values intangibles the most. They allow to create value for an organization (Edvinsson and Malone 1997; Hernandez and Noruzi 2010).

The first formal definition of the intellectual capital of an enterprise was formulated in 1995. At that time, it was identified only with knowledge. It was deemed to be a factor increasing the corporate value of an enterprise. Over the course of time, the scope of the notion started to expand beyond knowledge. Stewart (1997) defined the intellectual capital of an enterprise as the sum total of everything that its employees know, and which gives the enterprise its competitive advantage. Besides the knowledge of employees, he singled out the following factors contributing to wealth creation in an enterprise: information, intellectual property and experience.

A different approach to intellectual capital was adopted by Roos and Roos (1997), who stated that the intellectual capital of an enterprise is the sum total of invisible assets, unrecognized in financial statements, in other words, the employees of a given organization and everything that remains after they leave for home. According to Sveiby (1997), the most important elements of intangible assets of an enterprise include: employees' ability to quickly react in different situations, patents, ideas, computers, administrative systems, culture, atmosphere in the organization, relationships with customers and suppliers, brand, trademarks, reputation, as well as the image of an enterprise. The author sets intellectual capital against the background of an equally dynamic, and based on intangible values, concept of knowledge management, detailing the features of and objectives for intellectual capital. Intellectual capital and knowledge management are—according to this author—twin notions. The main difference lies in the dynamics of the two notions: intellectual capital is perceived as a static category, whereas knowledge management—as an active process of creation, encoding, processing, and knowledge transferring.

According to Edvinsson and Malone (2001), intellectual capital is knowledge, but also experience, organizational technology, relationships with customers and professional skills of employees, giving the enterprise a competitive advantage. The authors think that intangible assets are the roots of the corporate value of an enterprise, in other words, hidden dynamic factors which are fundamental for the visible enterprise, buildings and products. Malhotra (2000) also identifies intellectual capital with knowledge assets. According to him, knowledge assets include, apart from the very knowledge, information, innovation, ideas, creativity and other derivative resources.

Bounfour (2003) defines intellectual capital as intangible resources, temporarily connected with an organization. He claims that these resources are specific for an enterprise, inalienable, inimitable and untransferrable. The author takes into account brand, technological expertise, skilled employees, business contacts, machinery or effective procedures, etc. Bratnicki and Strużyna (2001) claim that intellectual capital is based on knowledge, although it also comprises other dimensions of total corporate value creation (e.g. brand, connections with external involved parties, etc.). Intellectual capital is the sum total of knowledge of individual people constituting the community of an enterprise, and a practical transformation of this knowledge into its value constituents. It includes all immeasurable elements shaping the difference between the total corporate value and its financial value.

It seems that the most common definition of intellectual capital is the definition formulated based on the research carried out in the “Skandia” enterprise, operating in an insurance industry at the beginning of the ‘90s. The research pertained to the manners of measurement and practical use of intangible assets. This definition also identifies the components of intellectual capital (Osbert-Pociecha and Karaś 1999; Sokołowska 2005):

$$\text{Intellectual capital} = \text{human capital} + \text{structural capital}$$

As it appears from the above-presented discussion, there are numerous definitions and classifications of intellectual capital in the literature, determining its structure. Most of them are based on the assumptions adopted by Stewart (1997), Sveiby (1997) and Edvinsson (1997). The selected ones have been presented in Table 1.

The above-presented table shows that the most often considered components of intellectual capital are as follows: human capital and structural capital, which incorporates organizational capital (internal) and relational capital (external) (Edvinsson and Malone 2001; Herman 2008; Łopaciuk-Gonczarczyk 2008; Kasiewicz et al. 2006). Human capital is inseparably integrated with human beings, their knowledge, experience, presence and activity opportunities in an enterprise. This capital is the property of the employed ones, so it may not be appropriated, and may only be subject to “lease” (Sokołowska 2005). Employees’ departure from a company (work resources reduction) may cause the phenomenon of organizational memory lapses, i.e. its amnesia—along with employees, the organization

Table 1 Selected classifications of the intellectual capital of an enterprise

Author	Structure
Stewart (1997)	Human capital Structural capital Customer capital
Brooking (1996)	Market assets Human capital related assets Infrastructural assets Market value
Edvinsson (1997)	Human capital Structural capital
Roos and Roos (1997)	Human capital Business processes capital Relational capital with the company's customers
Sveiby (1997)	Human capital Internal structural capital External structural capital
Sullivan (2000)	Human capital Intellectual assets Intellectual property
Kaplan, Norton (2001)	Customers Internal structure of an enterprise Learning and innovation processes Finances
Bratnicki, Strużyna (2001)	Social capital Human capital Organizational capital
Fitz-Enz (2001)	Intellectual property Complex combination of processes, culture, connected with a network of relationships of different types and human capital
Król (2006)	Human capital Structural capital External relationships capital

Source: Prepared based on Bratnicki and Strużyna (2001), Brooking (1996), Edvinsson (1997), Fitz-Enz (2001), Kaplan and Norton (2001), Król (2006), Roos and Roos (1997), Stewart (1997), Sullivan (2000) and Sveiby (1997)

irretrievably loses skills, experience related to mastering certain operational mechanisms, as well as informal connections with customers, suppliers and other employees (Francik 1998).

Structural capital is an organizational capacity, including physical systems used to send and store intellectual material (Walecka 2016). It may be divided into internal structural capital (organizational capital) and external structural capital (relational capital). Internal structural capital is defined as a set of intellectual properties of an organization, processes and working methods, executive procedures, databases, communications and information infrastructure. External structural capital comprises structures intended to maintain proper relationships with the environment (Chomiak-Orsa 2014). It includes, among others, the system of

searching for consumers, sales network, R&D projects, customer databases, brand and company reputation or strategic partnership (Wilk 2004).

It arises out of this classification that relational capital is a part of the structural capital of an enterprise. Internal relational capital is created both by managers and knowledgeable employees. External relational capital is shaped by contracting and institutional stakeholders (Hoffman-Bang and Martin 2005; Perechuda and Chomiak-Orsa 2013).

3 Relational Capital as a Source of the Competitive Advantage of an Enterprise

Although, as discussed above, relational capital is a part of the structural capital of an enterprise, the literature is increasingly often presenting relational capital as the third, **equal** constituent of intellectual capital. This is to emphasize the fundamental significance of relationships in creating the corporate value. As it has been noted by Stewart (1997), human, relational and organizational capitals are interrelated. Investing in people, systems or customers—separately—is not sufficient. They can provide mutual support, but they can also undermine each other.

Relational capital has fairly soon become of interest as a separate area of study. These issues have been discussed in many studies such as Ulrich (1998), Nahapiet and Ghosal (1998), Edvinsson and Malone (2001), Hegedahl (2010), Urbanowska-Sojkin (2004) and Perechuda and Chomiak-Orsa (2013). The most popular definitions of relational capital that may be encountered in the literature have been presented in Table 2.

The table shows that relational capital is perceived as an element of intangible assets of an enterprise, which consists of the value of all relationships with customers and other entities from the environment. They are understood as any knowledge obtained due to long-term cooperation. This knowledge contains information about purchasers' behaviours, databases with details of business partners, as well as state-of-the-art technologies, which allow to receive comments from customers and, thus, meet their requirements due to the feedback. Accumulating such information makes it possible for an enterprise to process it and effectively respond to purchasers' behaviours (Kieźel and Kwiecień 2012).

At first, relational capital was seen only from the angle of customers, i.e. as the list of customers and enterprise-customers relationships. Currently, relational capital is treated as an ability to mould relationships also with other stakeholders (Marcinkowska 2013). Creating relational capital is inherent in any organization, which is an open system, permanently exchanging tangible and intangible resources with the environment. However, possessing relational capital does not guarantee constant future proceeds for an organization. The essence of relational capital consists in continuous initiation and creation of further contacts building a network. The evolutionary character of a relational network enforces constant search for new

Table 2 Selected definitions of the relational capital of an enterprise

Author	Definition
Edvinsson and Malone (2001)	Relational capital is a part of intellectual capital, the structure of which comprises: knowledge, competence, experience, ability to cooperate, corporate culture, technology, and relationships with partners
Wilk (2004)	Relational capital consists of structures intended to maintain proper relationships with the environment, including, among others, the system of searching for consumers, sales networks, R&D projects, customer databases, brand, reputation, and strategic partnership
Urbanowska-Sojkin (2004)	The relational capital of an enterprise defines the extent and scope of connections between an enterprise and its contractors, and the degree of market insight both in terms of supply and sales; it is a crucial part of intellectual capital
Sokołowska (2005)	The relational capital of an enterprise constitutes its potential, related to intangible market assets. The examples are as follows: brands, customers and their loyalty, relationships with customers, various contracts and agreements, e.g.: licenses, concessions, marketing strategies, including: product quality shaping, price strategies, distribution channels, means of promotion used, reputation and image of an enterprise, formal and informal connections with suppliers, shareholders, partners or other interested parties in the enterprise's environment
Mendryk (2007)	Relational capital is competence of building and maintaining stable and close interdependencies, relationships based on mutual cooperation and trust that determine an organization's success in the market
Kardas (2009)	Relational capital is a network of external and internal relationships of an organization, with external relationships playing a more significant role
Hegedahl (2010)	Relational capital is a type and scope of relationships to be generated by an organization
Barão, Rodrigues da Silva (2011)	The relational capital is the value of social relationships in a given organization that contributes to achieve its objectives. It is the value of internal and external relationships of the organization
Perechuda, Chomiak-Orsa (2013)	Relational capital is a set of intellectual properties of an organization, processes and working methods, executive procedures, data, infrastructure; they are relational resources created by an organization

Source: Prepared based on: Barão and Rodrigues da Silva (2011), Edvinsson and Malone (2001), Hegedahl (2010), Kardas (2009), Mendryk (2007), Perechuda and Chomiak-Orsa (2013), Sokołowska (2005), Urbanowska-Sojkin (2004) and Wilk (2004)

partners as relationships are subject to constant changes. Some of them deteriorate, to eventually come to an end, other relationships evolve, changing in nature, as a result of which any organization must constantly search for new relationships and initiate them in order to ensure the continuity of operation.

These relationships are an opportunity for an organization to boost its **competitiveness**. Studies show that the more competitive the environment becomes, the more strategically important becomes the company's participation in the network of cooperative relationships (Adamik and Szymańska 2016).

The competitiveness of an organization is a state of dynamic organizational balance, developed due to its strategic adjustment, in other words, a relatively long-lasting network of relationships between the organization and its environment and within the very organization, which allows the organization to meet the requirements, both of the environment and the members of the organization (in material and technical, and political and social respects) (Adamik 2015). It is perceived as a process, in which market players, aiming at fulfilment of their interests, attempt at presenting more competitive offers in terms of price, quality or other features affecting the transaction closing decisions (Cyrkon 2000). The scientific research on relational capital conducted over the recent years has shown, among others, its positive impact on the ability to maintain a competitive advantage and corporate market value of an enterprise (Ostgaard and Birley 1996; Dyer and Singh 1998; Morgan and Hunt 1999; Ulaga and Eggert 2005; Pages and Garmise 2003; Czuba et al. 2012).

Determinants of enterprise competitiveness may originate from the inside of an organization, constituting unique and specific conditions typical of an individual company, and external factors include all and any events, situations, phenomena, objects and subjects, which are not constituents of a given enterprise, but affect the company competitiveness and its rivals. This means that they form a common environment for each of the business entities simultaneously, defining the rules of the game and development opportunities, creating chances, but also barriers and threats (Kozmiński and Piotrowski 2004).

The relational capital of enterprises is an internal factor, determining gaining a competitive advantage. As emphasized by Adamik and Nowicki (2012), intangible resources of an enterprise do not occur in a physical form, they are difficult to identify and count out, and their value is difficult to assess. They are unique, not occurring in a physical form, assets, difficult to imitate or copy by market competitors.

The potential of enterprise's competitiveness includes, among others, the following elements (Skawińska 2002):

1. Human capital—the quality of marketing personnel (logistics, distribution, sales), the quality of technical and financial personnel, the quality of managerial personnel (risk seeking, entrepreneurship and involvement in the quality issues), employees (qualifications, work performance, creativity).
2. Physical resources (quality, substitutability, complementarity, structure)—machinery, equipment, means of transport, IT infrastructure.
3. Financial resources—profit amount, net asset value, return on equity, financial liquidity, funds and receivables.
4. Invisible resources—information, technologies, innovations, company reputation, unique skills, informal connections with decision-makers, patents, licences, atmosphere at work, corporate culture, product brands, experience, contacts.
5. Organizational resources—decision-making system, distribution and logistics network organization, size of enterprise, organizational structure, quality

management, types of relationships with suppliers and consumers, monitoring system.

Empirical data shows that these resources, to a considerably greater extent, affect the impact of the developed competitiveness potential, mostly due to three exceptional features (Adamik 2003):

- Over the course of time, intangible resources and related skills expand and increase in value, unlike physical resources, which wear out and/or become depreciated (loss in value);
- Can be used simultaneously in different places (e.g. in several company departments);
- Have a unique nature and need to be developed personally (the process often takes a long time), unlike physical resources which may be bought (Obłój 1998).

The features discussed above are compelling for enterprises to put every effort so that their development is based on the maximization of intangible assets, including **relational resources**.

Organizations, in order to remain competitive, must have a potential and competitive instruments which make it possible for them to gain an advantage, ensuring a good position in the market. To maintain it in the long run, it is necessary to develop a distinguishing ability—exceptional resources which other players do not dispose of or cannot use (constituting a property/a skill typical of a given organization). It seems that the ability to establish relationships with the environment may be regarded as such a distinguishing ability. To a large extent, it is decisive for the structure (connections inside the organization and an ability to establish contacts with the environment), reputation (a sentiment felt towards the organization) and an ability to introduce innovation. Market economy is characterized by the willingness and necessity to fulfil, in a complex way, the needs of the customer, who seeks innovative added value in the product. Hence, the shortening of a cycle (increase in the speed) of introducing novelties and technological innovations becomes a standard. The discoveries of researchers make an organization accept new types of structures and innovative managerial actions, increasing the level of acceptance for a change of applied technologies. The source of competitive advantage and the manner in which it was achieved becomes crucial for ensuring an enterprise's ability to develop.

The organizations which want to stay in the market and be competitive must constantly establish proper relationships with their environment. The high quality of these connections should entail a significant improvement in business and social results of an organization. Therefore, it is essential that relationships with customers are optimized, as they are considered to be a basic element decisive for the effectiveness and efficiency of an organization, since they are difficult to copy and replace with other resources.

Relationships with suppliers, distributors on every level of distribution chain are also vital. Maintaining good relationships with customers and contractors is a prerequisite for management rationality. It arises out of the feedback taking place

here. Identifying the needs of contractors and customers is necessary for the proper fulfilment of the said needs, as well as for establishing and maintaining good relationships with the said entities. Good mutual relationships between employees and customers allow, in turn, a better identification of the needs and tastes of customers in order to satisfy them to the maximum. Good relationships allow communication and cooperation between entities, they are a source of creativity, innovativeness, entrepreneurship and a broadly defined activity. This leads to increased loyalty towards the company on the part of all contractors and enhanced customer satisfaction (Kieźel and Kwiecień 2012).

It should be noted at this point that the value of relationships of an enterprise may be considered in two dimensions: financial and non-financial. Relationships seen from the perspective of financial benefits include all types of cash flows made by purchasers and the costs related to their handling. Perceiving relationships through non-financial benefits allows to take into consideration recommendations issued by loyal, satisfied customers, good reputation and positive image built among friends, acquaintances—which, in turn, makes it possible to attract the multitude of new consumers and minimize cost incurred on promotion and marketing. In other words, good relationships are a source of further relationships.

4 Conclusions

The analysis of literature has shown that relational capital of enterprises is a phenomenon of interest to many researchers. Over the course of years, the approach to it has changed. In the beginning, it was seen from the angle of knowledge itself, both of the managerial personnel and employees of a given enterprise. Currently, it is perceived definitely more broadly—as the whole of relationships of an organization with its business environment, entire set of intellectual properties of an organization, its processes and working methods, executive procedures in operation, data or infrastructure. They are all relational resources created by an organization. There is no need to convince anyone of the importance of these resources. At present, the companies are not interested in one-off transactions. They build complex networks of connections, including loyal customers, suppliers or competitors. Due to good relationships with stakeholders, they are able to create a new, better product. An innovative product, tailored to the needs of a more and more demanding customer.

Good relationships are a source of creativity, innovativeness and entrepreneurship, as well as of a broadly defined activity. They make it possible for an enterprise to build a strong competitive advantage. They lead to an increased loyalty towards the company of all its contractors and enhanced satisfaction among its customers.

It should be emphasized at this point that building a relation between an enterprise and its business environment is an extremely laborious process. It takes a lot of time and outlays, including the financial ones. Possessing relational capital is not a prerequisite for regular generation of future proceeds for an organization.

The essence of relational capital consists in continuous initiating and creating of more and more new contacts, building a network. The evolutionary character of a relational network makes it necessary to constantly search for new partners, since relationships are subject to constant changes.

Acknowledgements The study was funded by the National Science Centre, Poland, as research project No. 2014/15/D/HS4/01170.

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State Support Programs of Small and Medium-Sized Enterprises in Russia

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Abstract Development and state support of small and medium-sized enterprises in Russia is a necessary condition for growth of the national economy. The state support is becoming especially significant, which effective implementation depends on efficient tools and mechanisms. Relevant issues are the creation and development of infrastructure of the state support. The aim of the article is the analysis of state support programs of small and medium-sized enterprises in modern Russian conditions. Works of the domestic and foreign scientists dealing with problems of functioning of small and medium-sized enterprises including their state support and its efficiency formed the methodological base of this research. As information base of research were used internet portals of the Russian Federation authorities. General scientific research methods were used in the data processing: the comparative analysis, synthesis, grouping, generalization. The Russian authorities and the development institutions through which the state performs its support for small and medium-sized enterprises are revealed in the article. The features of state support programs within each subject of management are researched. The main recipients of support, condition of obtaining and the amount of support are provided. The advantages and disadvantages of state support programs are revealed. Advantages are connected with the diversified nature of state support programs, the formation of a multi-channel support system. Disadvantages are connected with the presence of a set of restrictions that affect the development of Russian small and medium-sized enterprises, the lack of policy to encourage the regions and municipalities to implement their own support programs, adapted to the economic condition of the subject. The results of the analysis will allow estimating the influence of state support programs on indicators of success of small and medium-sized enterprises in Russia in further researches.

Keywords Small and medium-sized enterprises • Support programs • State support • Small business • Medium business

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1 Introduction

The steady growth of the national economy, first of all, depends on the creation of favorable conditions for the development of the business sector, its support. Especially small and medium-sized businesses have acute need for the state support. Effective implementation of the state support, first of all, requires creation of effective tools and mechanisms. Moreover, their creation is necessary both at the federal and regional levels. Now such attempts are made. Public authorities develop new and update previously existing support programs. Program implementation mechanisms are being improved. Institutions of small and medium-sized business development, including special funds, corporations, agencies, centers are created. Are the support measures of small and medium-sized enterprises in Russia efficient today? Are they effective and sufficient? These are the questions not only we—the researchers of this problem, but, above all, the representatives of the government have to find the answers. The aim of the article is the study and analysis of state support programs of small and medium-sized enterprises in modern Russian conditions.

The research of the functioning problems of small and medium-sized enterprises, factors of their success, the state support and development of their infrastructure is important for the Russian and foreign scientists. In particular, Beksultanova et al. (2015) studied the small business growth factors, restrictions and problems of development of small and medium-sized businesses in Russia. Korotaeva and Cheglova (2014) revealed the influence of the state and measures of the state support on functioning of small and medium-sized businesses. Influence of transactional expenses, social responsibility of the head, tax burden on successful functioning of small and medium-sized enterprises in Russia were researched by Nikolaeva (2015), Pletnev (2015) and Belova (2015). The spatial problems of the state support of small and medium-sized enterprises in Russia were studied by Aleshchenko (2015). Ivanov and Shturbabina (2014) researched the international support programs of small and medium-sized businesses. The comparative analysis of infrastructure development of the state support of subjects of small and medium-sized enterprises in Russia and abroad is carried out by Minakova et al. (2015).

Problems of small and medium business success found reflection in the works of foreign researchers. Stonkutė and Vveinhardt (2016) studied the key success factors in a context of a global supply system. Ligthelm (2011) carried out the analysis of survival of small enterprises in South Africa in 2007–2010. He identified the main factors of survival of small enterprises: human capital, entrepreneurial capabilities and business skills. Chittithaworn et al. (2011) analyzed success factors of medium and small business in Thailand. They found that the main factors are the external environment, customer relations, a business method and cooperation (in fact, supplier relationship), access to financial and other resources. Evans et al. (2001), Smulders (2012), Hansford and Hasseldine (2012) and Chittenden et al. (1999) were engaged in the study of tax laws as a factor that affects the small and medium-sized businesses. They considered that compliance with the tax laws acts as the

external factor of increase in costs of small and medium-sized enterprises. At the same time, they claimed that the regular requirements for businesses, especially small and medium enterprises, are burdensome and could impose restrictions on their growth and success.

2 Methodology and Data

The methodological base of the research was constituted by works of the domestic and foreign scientists dealing with the functioning problems of small and medium-sized businesses, the state support of small and medium-sized enterprises, success of small and medium forms of managing.

As information base of research were used internet portals of the Ministry of Economic Development of the Russian Federation, Ministry of Agriculture of the Russian Federation, the Foundation for Assistance to Small Enterprises in Science and Technology, the Federal SME Development Corporation (JSC “SME Corporation”), Joint-Stock Company “Russian Bank for Small and Medium Enterprises Support” (JSC “SME Bank”), the Agency for Strategic Initiatives. The information and legal portal “Consultant Plus” acts as the legal base of research. General scientific research methods were used in the data processing: the comparative analysis, graphical analysis, synthesis, grouping, generalization.

3 Results

If we talk about the state support of small and medium-sized enterprises (further SME), then, first of all, it is necessary to identify the subjects and tools through which this support is implemented. Now such subjects are: the Ministry of Economic Development of the Russian Federation, the Ministry of Agriculture of the Russian Federation, JSC “SME Corporation”, JSC “SME Bank” and the Foundation for Assistance to Small Enterprises in Science and Technology. Support programs which they realize act as the main instruments of the state support of SMEs. Next section will consider in more detail each support program within mentioned above subjects of management.

3.1 The Ministry of Economic Development of the Russian Federation

This ministry (since 2005 till present) realizes the program for provision of subsidies from the federal budget to budgets of territorial subjects of the Russian

Federation for the purpose of support of small and medium-sized enterprises at the regional level.

The program implementation is enabled by distribution of the federal budget on a competitive basis to regional budgets. At the same time, the funds are aimed at carrying out the activities provided for regional programs for development and support for small and medium-sized businesses. One of the terms of the program is the co-financing from the region. The advantage of this approach consists in the attraction of financial resources of the regions to the federal budget. That, in turn, stimulates regions to develop and realize more active policy in support of businesses. Features of the state program of support of the Ministry of Economic Development of the Russian Federation are presented in Table 1.

Table 1 State support program of the ministry of economic development of the Russian federation

The name of the program	State program of the Russian federation “Economic development and innovative economy”. Sub-program “Development of small and medium-sized enterprises”
The purpose of the program	<ol style="list-style-type: none"> 1. Providing favorable conditions for development of SMEs 2. Improving the competitiveness of SMEs 3. Increasing the number of SMEs 4. Providing employment of the population and increasing production of goods by SME (works, services)
Activities implemented in the framework of support	<ol style="list-style-type: none"> 1. Creation and development of financial infrastructure to support SMEs, aimed at assistance to development of the crediting system 2. Creation and development of consulting infrastructure of SMEs support 3. Creation and development of an innovative production infrastructure to support SMEs 4. Support for SMEs operating in the sphere of production of goods (works, services) 5. Support for SMEs’ startups 6. Support and development of SMEs involved in socially significant activities 7. Support for SMEs operating in the field of folk art and crafts, craft activities, rural and eco-tourism 8. Support for SMEs in the implementation of municipal programs (subprograms) for small and medium-sized businesses, including single-industry municipalities 9. Support for SMEs affected by the emergency 10. Support and development of youth entrepreneurship 11. Creation and development of property infrastructure to support SMEs—industrial parks; business incubators; agro-industrial parks and technology parks
The amount of funding	Determined by the authorized body in the territorial subject of the Russian federation

3.2 *Ministry of Agriculture of the Russian Federation*

This ministry (since 2012 till present) realizes the State program of agricultural industry development and regulation of the markets of agricultural products and raw materials for 2013–2020. The subprogram is realizing in the form of the grants provided to the beginning farmers; grants for development of a family livestock farm; subsidies for partial reimbursement of costs to small farms on loan interest payment; compensations of costs for farm household in case of registration of ownership of agricultural land. Features of the state support program of the Ministry of Agriculture of the Russian Federation are presented in Table 2.

3.3 *The Foundation for Assistance to Small Enterprises in Science and Technology*

The Foundation is a public non-profit organization, which operates since 1994. Currently, six main programs of innovative development are implemented by the Foundation. The programs are aimed at the creation of new high-tech companies and development of already operating ones. One of the program purposes is the commercialization of the results of scientific and technological activities. Features of support programs of the Foundation for Assistance to Small Innovative Enterprises in Science and Technology are presented in Table 3.

Table 2 The state support program of the Ministry of Agriculture of the Russian Federation

The name of the program	The state program of agricultural industry development and regulation of the markets of agricultural products and raw materials for 2013–2020. The subprogram “Small farm support”								
The purpose of the program	<ol style="list-style-type: none"> 1. Support for farm households and other small farms 2. The growth of agricultural production; the achievement of higher standards of living of the rural population 3. Increase in employment in rural areas 4. Reducing the level of latent unemployment 								
Activities implemented in the framework of support	<ol style="list-style-type: none"> 1. The state crediting support for small farms 2. Registration of ownership of agricultural land for farm households 3. Support for beginning farmers 4. Development of a family livestock farms on the basis of farm households 								
The amount of funding	<table style="width: 100%; border: none;"> <tbody> <tr> <td style="width: 50%;">2013—8.6 billion RUB</td> <td style="width: 50%;">2017—17.9 billion RUB</td> </tr> <tr> <td>2014—8.2 billion RUB</td> <td>2018—17.2 billion RUB</td> </tr> <tr> <td>2015—9.8 billion RUB</td> <td>2019—18.2 billion RUB</td> </tr> <tr> <td>2016—15.8 billion RUB</td> <td>2020—18.6 billion RUB</td> </tr> </tbody> </table>	2013—8.6 billion RUB	2017—17.9 billion RUB	2014—8.2 billion RUB	2018—17.2 billion RUB	2015—9.8 billion RUB	2019—18.2 billion RUB	2016—15.8 billion RUB	2020—18.6 billion RUB
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2016—15.8 billion RUB	2020—18.6 billion RUB								

Table 3 State support programs of the foundation for assistance to small innovative enterprises in science and technology

The name of the program, starting year	The purpose of the program	The main directions, the amount of funding	Participants
The program “Brainiac”, 2007	<ol style="list-style-type: none"> 1. Support of the young scientists wishing to perform innovative activities 2. Stimulation of mass youth participation in innovative, scientific and technical activities 3. Stimulation of young scientists and specialists to creation of the small innovative enterprises for commercialization of results of scientific developments 	<ol style="list-style-type: none"> 1. Information technologies 2. Biotechnologies 3. The modern materials and technologies of their creation 4. New instruments and hardware complexes 5. Medicine of future Grant of 500,000 rub for 2 years of operation	Individuals between 18 and 30 years inclusive, being citizens of the Russian federation, and have not won earlier the “Brainiac” program
The program “Start”, 2004	Creation of the new small innovative enterprises and support of already existing companies which are willing to put into production new goods, products, technologies and services based on their own research results	Directions similar to the program “Brainiac” Up to nine million rubles for three stages	Startups at early stages of innovative activity
The program “Development”, 2011	Support of the developed entities with positive business reputation and sales experience of the knowledge-intensive products in the market but feeling need for additional research and advanced development that improve efficiency	<ol style="list-style-type: none"> 1. Socially oriented projects 2. Medicine 3. New materials 4. New production technologies Grant of up to 15 million rubles on condition of 50% co-financing from non-budgetary funds	SMEs operating for at least 2 years and having the types of economic activity RNCEA code 72.1 (RC 029-2014 of 01.02.2014) or RNCEA code 73.1 (RC 029-2001 and 029-2007)
The program “Internationalization”, 2013	<ol style="list-style-type: none"> 1. Increase in competitiveness of small innovative business of Russia in the international markets 2. Support of the 	<ol style="list-style-type: none"> 1. Technologies of environmental protection 2. Biotechnologies and researches in the field of health care 	SMEs having the types of economic activity RNCEA code 72.1 (RC 029-2014 of 01.02.2014) or

(continued)

Table 3 (continued)

The name of the program, starting year	The purpose of the program	The main directions, the amount of funding	Participants
	<p>Russian organizations participating in implementation of innovative projects within bilateral and multilateral international programs of a cooperation</p> <p>3. Support of the companies with export-oriented products for the purpose of increase in a share of non-resource export from Russia</p>	<p>3. Information and communication technologies</p> <p>4. Nanotechnologies</p> <p>5. Space and nuclear researches</p> <p>Grant of up to 15 million rubles on condition of 50% co-financing from non-budgetary funds</p>	<p>RNCEA code 73.1 (RC 029-2001 and 029-2007)</p>
<p>The program “Commercialization”, 2014</p>	<p>Financial support for small innovative enterprises which have completed research and advanced development and planning creation or expansion of innovative production</p>	<p>Grant of up to 15 million rubles on condition of 100% co-financing of their own or third-party financing</p>	<p>sole traders and SMEs that operating for at least 1 year, occupying the niche in the market, and having scientific and technical and financial history</p>
<p>The program “Cooperation”, 2015</p>	<p>Support of innovative activities of the enterprises within interaction between the large companies and small business</p>	<p>All directions listed above in the programs</p> <p>The amount of financing—up to 20 million rubles.</p>	<p>Small innovative enterprises which are carrying out research and advanced development for the purpose of the subsequent commercialization of results of research and development to medium-sized and large business having the developed production base, sales network</p>

3.4 *The Federal SME Development Corporation (JSC “SME Corporation”)*

The corporation is a development institution in the field of small and medium-sized businesses. One of the main objectives of the Corporation is to provide financial support to SMEs. Implementation of the financial support is carried out in two main directions.

3.4.1 **The Lending Stimulus Program for SMEs (The So-Called Program 6.5)**

The key terms of the program are to establish a fixed interest rate at 11% per annum for small enterprises, 10% for medium-sized enterprises in case of 0 million rubles to 1 billion rubles loan. The program is implemented through 12 authorized banks that provide financing to SMEs and acquire the refinancing right in the Bank of Russia at the rate of 6.5% per annum. Thereby this program has the second name “Program 6.5”. The features of this program are presented in Table 4.

3.4.2 **Guarantee Support for SMEs (National Guarantee System)**

Guarantee support is implemented in three directions:

Direction 1. Independent Corporation guarantees to SMEs. In this case, the Corporation provides direct guarantees to obtain loans in the accredited banks (currently their number reached 46) by SMEs in case of absence or insufficient mortgage bond. Thus, the Corporation together with the bank shares the risks

Table 4 The program of lending stimulus for SMEs, implemented by JSC “SME Corporation”

The name of the program	The purpose of the program	The main directions	Participants
The program of lending stimulus for SMEs	Providing SMEs with available lending resources	<ol style="list-style-type: none"> 1. Agriculture, including the provision of services in this area 2. Construction 3. Transport and communications 4. Manufacturing, including food production and processing of agricultural products 5. High-tech projects 6. Domestic tourism 	SME, which is registered in the status of a legal entity on the territory of the Russian federation

associated with the impossibility of proper loan servicing by SMEs. That is the guarantor of fulfillment of obligations under the credit agreement. Provision of an independent guarantee can be performed both with participation of the Regional Guarantee Organization (RGO), and without it. The mechanism of the guarantee in this case is different; the size of an independent guarantee can reach 50–70% of the loan amount. For the microenterprises, this amount shall not exceed 15 million rubles (the decision making period is up to 3 days), for small enterprises—15–50 million rubles (the decision making period is up to 5 days), for medium scale enterprises—more than 50 million rubles (the decision making period is up to 10 days).

Direction 2. Bank guarantees of “SME Bank”. The terms of the guarantee of “SME Bank” and responsibilities are similar to the terms of guarantee implementation of “SME Corporation”. The differences are only in the following. First, the guarantees are provided through “SME Bank’s” partner banks (now their number has reached 37). Secondly, the aggregate amount of the bank guarantees provided by “SME Bank” according to liabilities of SME to all banks does not exceed 50 million rubles (inclusive). The amount of remunerations for provision of the guarantee by “SME Bank” and “SME Corporation” are identical. It is 1.25% per annum of the guarantee amount for the entire period of its validity.

Direction 3. The guarantee of the Regional Guarantee Organizations (RGO). RGO provide guarantees to SMEs with insufficient mortgage security on the loans, bank guarantees, micro-loans, leasing. The maximum guarantee in relative expression varies from 50 to 90% of the guarantee amount. The maximum guarantee in absolute expression, remuneration rates (on average varies from 1.5 to 2% per annum from the guarantee amount) for its provisions is established independently by each RGO (established in 82 regions of the Russian Federation).

In addition to the programs of support considered above the Corporation actively develops infrastructure of the state support for SMEs. The infrastructure is developed in five main directions of support: financial, property, consulting, innovation and production and legal. It was considered in more detail earlier by Belova (2016).

3.5 Joint-Stock Company “Russian Bank for Small and Medium Enterprises Support” (JSC “SME Bank”)

JSC “SME Bank” (since 2004 till present) is one of the subjects implementing the state program of financial support for small and medium-sized businesses. Ensuring availability of borrowed funds to SMEs is one of the main objectives of JSC “SME Bank”. The financial support is performed on two-level system. The first level of a

financial support is implemented through partner banks. The number of such partner banks on all federal districts so far reached 1724 (as of 24.08.2016). The second level of the system is constituted by the organizations of infrastructure. These include leasing companies (102 units), factoring organizations (70 units) and microfinance institutions (711 units). Thus, “SME Bank” performs such functions as extending credit to the partner banks in accordance with the established procedure, including programs of refinancing; extending credit to the organizations of the financial infrastructure of SME’s support in accordance with the established procedure. The recipients of support are SMEs of any kinds of activities, except insurance and credit organizations, pawnshops, gambling industry, enterprises of production and sales of excisable products and excisable raw materials, the participants of the production sharing agreements, non-residents of the Russian Federation. “SME Bank” represents several programs of financial support for small and medium-sized businesses. Their features are presented in Table 5.

4 Conclusions

The results of this research allow us to draw the following conclusions. First, the range of support programs and the number of subjects of support achieve rather impressive size. The purposes of support have diverse and versatile character. At the same time, this support covers not only the key sectors of the economy. Secondly, the work on formation of multichannel system of support is continued, development institutions necessary for this are created. Infrastructure of the state support is enhanced. The emphasis is placed not only on a financial support, but also on property, consulting, innovation, production and legal.

But at the same time, it is quite difficult to judge about the efficiency of the support programs. It is caused by the lack of the up-to-date statistical data reflecting indicator values of effectiveness of program execution. There is a time lag in reflecting the actual statistics on the official websites of the departments (2–3 years). In the end of 2016 the newest official data of entrepreneurship support of the Ministry of Economic Development of the Russian Federation is related to 2013. The newest reports of the Foundation for Assistance to Small Enterprises in Science and Technology dedicated to 2014. There is no Unified State Register which unites and reflects the indicators of effectiveness of programs of all departments and development institutions. In addition, there are a number of restrictions which constrain the development of Russian small and medium-sized enterprises. The restrictions are connected with the fact that a number of SMEs cannot be the recipients of the support due to the discrepancy to condition of entry. These include SMEs registered as a legal entity (self-employed individuals are not allowed), the necessary working capital, the absence of tax arrears to the budget and extra budgetary funds, etc. Until now, the contribution of SMEs to GDP remains at the insignificant level (21–22 vs. 62% in the United States, Japan, 50%—in the UK,

Table 5 The programs of financial support for small and medium-sized businesses by JSC “SME Bank”

The name of the program	Types of loan products	The rate, size, loan term for SMEs
Bank lending	SME-investments	9% per annum to Partner Bank, a rate can be increased for SME up to 5% depending on the loan amount; up to 150 million rubles; from 3 to 7 years
	SME-priority	9.3% per annum to Partner Bank, a rate can be increased for SME up to 4.9% depending on the loan amount; up to 150 million rubles; from 1 to 7 years
	SME-duo	9% per annum to Partner Bank, a rate can be increased for SME up to 5% depending on the loan amount; up to 150 million rubles; from 3 to 7 years
	SME-stability	6.6% per annum (up to 1 year), 8.5% (from 1 to 3 years) to Partner Bank, to SME—9.5% (up to 1 year), 12.5% (from 1 to 3 years); up to 10 million rubles; from 1 to 3 years
	SME-region	8.5% per annum to Partner Bank, a rate can be increased for SME up to 5% depending on the loan amount; up to 60 million rubles; from 1 to 7 years
Leasing	Leasing-trust	11.7% per annum to Partner Bank, a rate can be increased for SME up to 5% depending on the object of leasing; up to 150 million rubles; from 2 to 5 years
	Leasing-regional capacity of SMEs	10.0% per annum to Partner Bank, a rate can be increased for SME up to 5% depending on the object of leasing; up to 30 million rubles in several objects of leasing; from 2 to 5 years
	Leasing-priority of SMEs	10.0% per annum to Partner Bank, a rate can be increased for SME up to 5% depending on the object of leasing; up to 60 million rubles in several objects of leasing; from 2 to 5 years
	Leasing-favorable conditions	13.0% per annum to Partner Bank, a rate can be increased for SME up to 5% depending on the object of leasing; up to 150 million rubles in several objects of leasing; up to 7 years
Factoring	“Factor of development-bank”	10.0% per annum to Partner Bank, a rate cannot be increased in more than two times for SME; up to 150 million rubles; deferral up to 180 days
	“Factor of development-company”	10.5 and 11.5% per annum to Partner Bank, a rate cannot be increased in more than two times for SME; up to 150 million rubles; deferral up to 180 days
Microfinance	Microloan for SMEs	9.75 and 12.75% per annum to Partner Bank, a rate cannot be increased in more than two times for SME; up to 3 million rubles; to 3 years, to 5 years (according to the decision of the authorized body of the Bank)
	Microloan for SMEs Level 2	9.75% and 12.75% per annum to Partner Bank, a rate cannot be increased in more than two times for SME; up to 1 million rubles; from 6 months to 3 years, to 5 years (according to the decision of the authorized body of the Bank)

(continued)

Table 5 (continued)

The name of the program	Types of loan products	The rate, size, loan term for SMEs
	Investment loans for SMEs	10.25% per annum to Partner Bank, a rate cannot be increased in more than 7% for SME; from 3 to 15 million rubles

Hungary). It allows to draw a conclusion that the synergistic effect of the implementation of SME support programs in Russia is still absent.

Acknowledgement The study was performed at the expense of a grant of the Russian Science Foundation (project №14-18-02508).

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Applying the AHP Method into the Assessment of Project Attitudes

Jacek Strojny, Joanna Szulc, and Małgorzata Baran

Abstract The purpose of this article is to present the concept regarding the assessment of project attitudes, described by the DIA Model (*Disposition-Internal stability-Activities*). In pursuing this goal, a review of the literature was provided. Focus was placed on the useful concepts from the point of view of the description of the project attitudes. Next, the methodology of the study was described, indicating the course of the research procedure based on the method of analytic hierarchy process (AHP). Then, the dimensions of AHP model were presented. The subsequent section of the paper presents the results of the pilot studies, which verify the model and the measurement procedure of the project attitudes. The study was conducted on three groups of students: full-time students specializing in project management, full-time students specializing in finance and banking, and finally post-graduate students specializing in project management. Conclusions based on the study were drawn in the following dimensions: cognitive, methodological and utilitarian. Further plans for research in developing the presented concept were mentioned as well.

Keywords Project management • Project attitudes • Project manager • Individual features • Analytic hierarchy process

1 Introduction

The issue of attitudes and the factors influencing them is nowadays quite a popular topic of research and scientific publications in the various fields of science. Due to its complex structure, attitudes are the phenomenon analyzed from different

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perspectives, and thus defined in various ways. However, one may agree, that every human being is guided by different abilities of perception, emotional sensitivity, knowledge, temperament, etc. As a result, individual attitudes and the mechanism of their transformation into a certain behavior can be observed. Understanding the mechanisms of human attitudes is an important area of research in both psychology and sociology. The problem of human attitudes, however, is also interesting in the context of human behavior in organizations, and also from the perspective of management sciences. This viewpoint of examining the research problem was implemented in this article. Due to the contemporary high popularity of the approach, which is referred in the literature as project management, it was decided to restrict the study of attitudes only to this one area of activity.

The key research question can be summarized as follows: How does one describe and measure the attitudes which are relevant from the point of view of people participating in projects? It is important for at least two reasons. First, the growing role of projects in the economy can be observed. Companies and other entities are transformed into project-oriented organizations, adjusting the organization of work, mechanisms of motivation, organizational culture and the competencies of people as well. Secondly, the increasing dynamism in careers of employees is visible. Very frequently, they move from one project to another, even if they work within the same organization. Additionally, more and more often, new employees are associated with the organization for only the duration of the one project. This affects a significant increase in the role of the recruitment process in the management of the organization, and of course in the project management. From this it follows the growing importance of tools that allow making a preliminary assessment of an individual in terms of their fitting in with the formed project team and the project requirements as well.

The aim of the article is to present a preliminary version of the model describing attitudes relevant from the point of view of participation in projects. In pursuing this goal, first, a short review of the literature was provided in both the area of attitudes as well as project management. On the basis of it, a model of the project attitudes was created by defining its structure and describing its separate elements. To create this model, the method of *Analytic Hierarchy Process* (AHP) was adopted. It was created by Saaty (1980) and it is currently one of the most popular and the most advanced methods of multi-criteria analysis. The model takes into account three components of project attitudes: emotional-evaluative (D—*Disposition*), cognitive (I—*Internal stability*), behavioral (A—*Activity*) and, hence its name—DIA model. The model was then evaluated in terms of the significance of its individual elements. Utilized here is expert evaluation by people involved in project management and personal management. The evaluation procedure was also based on the method of AHP. Individual experts evaluated the various elements of the model, comparing them with each other using Saaty's scale. This resulted in weights of each element of the model. They were used for a weighted evaluation of the individual components of attitudes and general assessment of project attitudes. After that, a constructed tool was tested on a pilot group of 100 full-time students specializing in both project management (50 people) and financial management

(50 people), and 5 post-graduate students specializing in project management. The results of this study, and the conclusions drawn on its basis are also presented in this article.

2 The Issue of Project Management

In recent years, project management has become an increasingly common method of management in Poland (Strojny 2012). In developed countries, this approach has been advancing for many years. It is currently very popular in many sectors of the economy. For this reason, more and more organizations are seeking people for the position of project manager or project team member. Project management owes its popularity to many factors. The main is the increasing volatility of the environment in current organizations. It necessitates a departure from the existing activity, based on repeatable management. Today, many projects have a unique character and are limited by many external and internal determinants. For this reason, projects require solving new problems or taking into account new conditions. They fill therefore, the definition of the project and force the organization to transform in the direction of project-orientation.

Project management is a method currently situated in a very advanced stage of its life cycle. Its origins can be linked to the work of such creators of scientific management such as H. Gantt (1910), and therefore with the breakthrough of the nineteenth and twentieth centuries. Initially, the tools and methods of the projects were mainly used in the military sector (Kwak 2003). The most notable example of the use of a comprehensive approach to project management was called the *Manhattan Project*. During World War II, this project led to the construction of the first US atomic bomb. Over time, project management began to penetrate civilian sectors. In the 1960s and 1970s they started business and have developed into two very famous contemporary methodologies and approaches. In 1965, the *International Project Management Association* (IPMA) was created as an international non-profit organization, dedicated to the development of the project management method. Then, in 1969, another international institution known as the *Project Management Institute* (PMI) was established (Dąbrowski 2003). Since that time, a number of methodologies concerning project management have been created, both generic and industrial. In addition to cascading approaches, so-called agile methodologies are becoming increasingly popular (Chrapko 2013).

In the modern world, the importance of projects has increased steadily. The reason for this is the increasing level of complexity and diversity of problems, and ideas on how to tackle them. Projects occur in many areas of life, including industry, science, education, public administration or sports. They can be internal, aimed at solving problems within the organization, and external, created for external stakeholders (e.g. customers). When defining the project, one can refer to one of the most important representatives of Polish management science, T. Kotarbinski. He used the term enterprise, defining it as “the comprehensive

action provided in a multi-stakeholder environment, and carried out in accordance with the plan” (Kotarbiński 1970, p. 193). Today there are many definitions of project, proposed by both the individual project management methodologies, as well as researchers in that field. For example, PRINCE 2 is defined as a “temporary organization that is created for the purpose of delivering one or more business products according to an agreed business case” (OGC 2009, p. 3). A similar definition is proposed by PMI: “a project is a temporary endeavor undertaken to create a unique product, service, or result” (PMI 2013, p. 3). Another global organization, IPMA, understands the project “as a time and cost constrained operation to realize a set of defined deliverables (the scope to fulfill the project’s objectives) up to quality standards and requirements” (IPMA 2013, p. 16).

Each implemented project has a set of unique attributes (Madauss 2000). Given these characteristics, one can define project as “a unique project of high complexity, defined as the period of their execution—with spotlight beginning and end—requiring the involvement of significant but limited resources (material, human, financial, informational), carried out by a team of highly qualified contractors from different fields (interdisciplinary) in a relatively independent manner from repetitive activities associated with high risk of technical, organizational and economic and, therefore, require the use of special methods of their preparation and implementation” (Trocki 2012, pp. 19–20).

As set forth in the definitions of project, it should be noted that an important feature of such activities is the specificity (the ability to define the expected values of certain parameters). This applies primarily to such dimensions as time, cost, and scope (Newell and Grashina 2003; Trocki et al. 2003). Extracting the team, whose task it is to implement the project, is just one focus in achieving these parameters. According to project management methodologies, actions undertaken in the framework of the project can be described using four phases: initiation, planning phase, execution phase and the end phase (Pietras and Szmít 2003). The probability of success of the project can be increased by carrying them out in the correct way. However, success depends on many factors, which relate to the quality of the project management process. These include communication with the stakeholders, the proper selection of a project team, accurately planned scope of work, as well as conducting control of the schedule (Spalek 2004).

During the implementation of the project, however, errors are often committed. Typical are: lack of or incomplete analysis of the initial situation, lack of documentation, lack of clear division of responsibilities, disregard for non-compliance, underestimation and undefined risks, the lack of preparation of appropriate preventive measures and lack of planned alternatives, lack of evaluation, analysis of completed projects (Walczak 2014).

It is worth noting that the management of the project, including the project team management, is associated with many challenges. Each project generates problems whose solution requires new competencies. Hence, there is a significant risk of errors. The very process of the creation of the project team may cause some difficulties. Employees are required not only as highly qualified specialists, but must also have an interdisciplinary approach. To perform the tasks involved in the

project there is willing staff with rich experience and extensive knowledge. The searched feature is the ability to work both within a project team and in relations with external partners. Employees should also have appropriate qualifications, e.g.: well-developed technical skills, political correctness, problem-solving orientation, and an attitude to achieve the intended results (Meredith and Mantel 2000). It draws attention to the fact that employees should have some common features that are specific adhesive of the project team (Keeling 2000). On the other hand, it is also important that members of the project team should complement each other, both in terms of personal qualities and competence. This situation brings synergies (Kmiotek and Piecuch 2012) which are difficult to achieve in the framework of linear organizational units.

The project team consists of a project manager, task managers and other team members, each responsible for the substantive work. The structure of the project team, however, can vary significantly, depending on the specific project and the conditions for its implementation (Trocki 2012). The project manager is the “person in the position of temporary staff, separate from the employees of the organization, responsible for the course of the project within the predetermined range” (Strojny 2012, p. 30). The team manager is the person responsible for the project’s management in many aspects (Nicholas and Steyn 2008). Responsibilities vary depending on the specific solutions adopted in the organization. The project manager must often take many roles: team leader, mediator, mentor, economist, bureaucrat, personnel manager, a psychologist and vendor. For the position of manager should be chosen a person who has the following traits: conscientiousness and diligence, vigor, ability to control, self-confidence and openness, sobriety of judgment, and ability to persuade. While at the same time, those who should be avoided are people who are quarrelsome, conventional, modest and uncertain of their activities (Trocki 2012).

The problem of selecting the right people for the project team is therefore crucial for the success of the project. This requires an assessment of their knowledge and experience. Equally important, however, is the selection of persons suitable for individual characteristics—temperament, attitudes, etc. Implementation of the methodological approach to the process of selecting the project team is one of the manifestations of project maturity. This article focuses on one of the elements of such a methodical approach, proposing a model for the identification and assessment of the attitudes in a project candidate for the project team.

3 The Issue of the Personal Attitudes

The issue of attitudes has been analyzed in psychology and sociology for many years. At the beginning of the 1900s the attitude was understood as “the process of individual consciousness, specifying the actual or possible activity of the person in terms of the social world” (Thomas and Znaniecki 1918–1920, p. 27). Over the years, it has resulted in a large number of definitions that describe the attitude.

Social psychologists agreed that it is not possible to specify one particular definition of posture due to its complex structure. However, Nowak (1973, p. 23) made such an attempt, and offered a universal definition of the attitude. “The attitude of a person to a certain object is a whole set of relatively stable dispositions to assess the subject and emotional response to it, as well as, possibly, accompanying to this emotional evaluation, dispositions for relatively stable beliefs about the nature and properties of the object and relatively stable dispositions to behavior towards this subject”.

In the structure of the attitude at least three components can be identified. The first component is a cognitive one. It contains relatively stable feelings, thoughts, beliefs of people regarding an object’s properties, attitudes or prejudices associated with it. The second component may be defined as affective, as it plays an important role as a motivational factor. It consists of two sub-components—evaluation and emotion. With respect to the first it is the ability to draw cool intellectual ratings and can be expressed with the words, “correct” or “wrong”. While the latter expresses the emotional reaction or feelings that induces a specific object, e.g. “joy”, “excitement”, “bitterness”, or “sadness”. The last is a behavioral component which involves the reaction of facial, vocal, pantomime, verbal, and a whole spectrum of other human behavior, observable towards the subject of attitudes.

It is generally accepted that attitude is a long-term assessment, belief or activity of people. However, there are also methods by which it is possible to form attitudes. Changes in attitudes can lead to the improvement of people’s behavior from the point of view of the environment in which they operate. This is extremely important from the point of view of the management process. The formation of attitudes is in fact an essential element of building the desired organizational culture. Not always, however, will change of attitude lead to improvement. One way of consolidating the existing attitude is strengthening values. The hardest is to change the attitude based on the emotional component, because they are based on deep-rooted values (Aronson et al. 1997).

When willing to understand the attitudes and influence them, it is important to properly identify and evaluate (e.g. in terms of their severity). Due to the complexity of this phenomenon, it is necessary, however, to apply a multidimensional approach (Mika 1987). With the appropriate methods you can measure people’s attitudes. Attitudes can be measured in two ways, directly or indirectly. Direct measurement involves asking people directly what they think about the topic. When using this method, one should remember about proper communication in order to get honest answers. Appropriate tools should be used for this type of measurement of attitudes. The easiest way is a request to select a response on a numerical scale. For this type of tools one-item scales, as well as multipoint scales, can be used (Radzicki 2004). Indirect measurement is used in situations where the respondent is unaware that they are a participant in the research. With this solution it is possible to remove concerns about the falsity of a response or construction of attitudes depending on the situation. The indirect method of measurement includes hidden attitudes and unresponsive measures. The first method is divided into the hidden measure attitudes and projection measurement techniques. The second method is

the observation of human behavior in its natural environment as well as the examination of physical evidence or archival records, etc. (Radzicki 2004).

This article uses an approach based on the direct measurement of attitudes. The main premise of such a choice is to strive to build a tool which is relatively simple in design and easy to use in the selection of the project team. Methods of indirect research attitudes are much more specialized, complex and therefore not suitable for use in the present study.

4 Methodological Assumptions of the Research

In developing the defined purpose of the article, which is to present the concept of the model describing the attitude of relevant participation in the projects, the research problem was formulated. It can be presented in the form of the following questions: **GQ: How to describe and evaluate attitudes which are important for people participating in the projects?** The stated problem refers to a complex phenomenon, that is the attitude of a person, and the mechanisms of its formation. Therefore, the right approach to its explanation is a multi-criteria analysis. Thus, the first detailed research questions can be formulated:

- DQ1: How to describe the dimensions of the project attitudes?
- DQ2: What is the significance of the individual dimension of the project attitudes regarding the success of the project?

The literature describes many multi-criteria methods, for e.g.: AHP, ANP, Electra PROMETHEE, TOPSIS, BIPOLAR, etc. (Trzaskalik 2014). In this study the method of *Analytic Hierarchy Process* (AHP) was adopted. Among the features of this method can be replaced (Prusak and Stefanów 2014): (1) the use of expert knowledge, (2) the possibility of structuring a problem, and (3) obtaining priorities in relation to elements of the structure of the problem. It was considered useful from the point of view of the objective, which is to build a model of the project attitudes of a person. The origins of the method can be dated back to the years 1970–1980, and whose creator is Saaty (1980). It is mainly used to support decision-making processes for structuring the problem and analysis of preferences (Saaty and Forman 1992). It is currently one of the most popular and at the same time advanced methods in the world (Prusak et al. 2014). In addition to research it is used also in the business practice, both in companies and public institutions. In this study it was used to build a model describing the project attitudes and to assess the significance of its individual elements from the point of view of ensuring the success of the project. In evaluating the significance Saaty's 9-point scale was used.

The study was conducted with a purposeful group, consisting of a total of 100 students studying in their third year of undergraduate studies and majoring in Management at the Faculty of Management at the Rzeszow University of Technology. Two specializations were selected for the study: Project Management and Financial Management. Two groups of students were selected to determine whether

there is a difference in the level of intensity of project attitudes between them. Students specializing in Project Management (PM ug students) are the primary group, while students of Financial Management (FM ug students)—are a comparison group. In order to perform additional analysis, another control group was used and consisted of five graduate students majoring in Project Management (PM pg students) at one of the universities in Krakow. The criterion for selection was primarily that the selected students should work in projects on decision-making positions.

Further detailed research questions were formulated, taking into account the selected research group:

- DQ3. Is a considerable intensity of project attitudes seen in the research group?
- DQ4 Are there any differences in the intensity of the project attitudes between undergraduate students studying specializations: *Project Management* and *Financial Management*?
- DQ5 Are there any differences in the intensity of the project attitudes between students of undergraduate and postgraduate studies?
- DQ6: Are there any differences in the intensity of the project attitudes between men and women?
- DQ7 Are there any differences in the intensity of the project attitudes between people from cities or towns and villages?

To complete the research, a paper form of survey was selected. This method of performing research was focused on collecting accurate and reliable information from respondents. The questionnaire was distinguished by three groups of questions that corresponded to the criteria of the model (components of project attitudes). The questionnaire contained 45 closed questions. Each were answered on a five-point Likert scale on which the respondent had the opportunity to select one answer reflecting the level of intensity of a factor. In order to check the internal consistency of the model, the Cronbach's alpha coefficient was used. Then, the discriminatory power (Frankfort-Nachmias and Nachmias 2001) and the level of statistical significance was calculated (Jezior 2013).

5 Structure of the Model of Project Attitudes (*DIA Model*)

Based on an analysis of literature and interviews with experts, the model of the attitudes project includes three basic dimensions: disposition (**D**), internal stability (**I**), activity (**A**). The first dimension refers to the cognitive component, the second to the affective one, and the third one to the cognitive. Each of the main dimensions is divided into three specific elements that are important and desirable in people dealing with project management. The created model of project attitudes is the response to the first research question (DQ1).

The following are characteristics of the different sub-criteria of the model:

- **Aiming objectives.** The person should persistently and systematically implement the tasks, despite problems which emerge. It should be steady and specific in making decisions.
- **Attitude to cooperation.** A person should feel satisfaction and contentment in belonging to a team and strive to participate in teamwork.
- **Attitude for success.** A person should be focused on the success of the project and determined in pursuing it. It should be treated not only optimistically, but also realistically and objectively when evaluating the ongoing project.
- **Self-control.** A person has the ability for toned response in new and demanding situations. Realistically assess the situation and take rational decisions based on assumptions which under the circumstances are considered to be the most optimal.
- **Self-confidence.** A person believes in their competences and without resistance presents ideas for the implementation of tasks. If making a mistake openly, admits to the error. Guided by their own principles without being arrogant and conceited.
- **Internal control.** A person is convinced of the significant impact on the environment in which they are located. Failures and successes associates with their activity.
- **Planning.** A person plans their action, is ordered and organized. Analyzes the potential risks of actions undertaken and intentionally adapts to the situation observed.
- **Seeking challenges.** A person willingly but deliberately approaches new ideas. Looks for challenges from which to acquire new skills. Rationally assesses the risks associated with new activities.
- **Striving for development.** The person strives to continuously improve their knowledge and gain new experiences. Seeks opportunities to quickly develop and skillfully guide their career.

6 Research Results

The first part of the study was directed in obtaining information on the relevance of individual elements (criteria and sub-criteria) of the tested model. This is the response to the second research question (DQ2). The procedure of the AHP method was used here, so interviews with experts were done. The study involved five experts, who are academics working in various universities in Poland and involved in the following subjects: project management, human resources management and sociology. They were asked to assess the individual elements of the model by comparing pairs from the criteria level and the level of sub-criteria under each criteria. The Saaty 9-point scale was used here. The results of the study are presented in Table 2. The individual opinions of experts were averaged using an arithmetic mean. Only the coherent responses of experts were taken into account ($CR < 0.10$).

The significance of the different dimensions of project attitudes rated at a relatively similar level. The highest significance (38.89%) has a cognitive component associated with the internal stability of the person. The least rated is the affective component (disposition)—the weight is 26.8%. As for the sub-criteria constituting a further detailing of the individual components, was considered as the most important a sub-criteria: Strewing for development (gw: 15.76%). Only slightly less important are: Aiming Objectives (gw: 14.59%), Planning (gw: 14.36%) and Self-confidence (gw: 14.12%). According to the experts, a person involved in projects should therefore demonstrate a desire to seek growth opportunities for personal development through such activity. They should be very much directed towards achieving the related objectives and capable of ensuring implementation of the resulting action in a planned manner. They should also demonstrate a high mastery in situations of crisis, or in the face of new challenges. As a result, in a rational way they can adapt their activities to the situation, looking for the most optimal solutions.

The second part of the study includes the verification of the model in the study group of students. The level of intensity of each constituent component of the project attitudes was studied using questionnaires. The Likert 5-point scale was used here. Students referred to the questions presented in the case, specifying the typical fashion of the potential reaction. The value of each sub-criterion was calculated as a weighted average of the responses to questions that the criterion concerned. To each sub-criterion were assigned five questions. Local scales were used to calculate the level of intensity of attitudes at the component level (criteria) and on the general level, derived from the analysis of preferences (Table 1). Below (Table 2) is shown the average value of the intensity of attitudes at a general level as well as the criteria and sub-criteria. The formula used herein (1).

$$C_i = \sum_{i=1}^n C_{ij}w(C_{ij}) \quad (1)$$

Where:

C_i —value of the indicator, corresponding to the element of the model of higher order (sub-criterion for questions criterion for sub-criteria, the main indicator for the criteria).

C_{ij} —value of the indicator corresponding to element of the model on the lower level with respect to the calculated indicator of a higher level.

Table 1 Structure of the model of project attitudes (DIA model)

Project attitudes (P)		
Disposition (P_D)	Disposition (P_D)	Disposition (P_D)
Aiming objectives (P_{D1})	Aiming objectives (P_{D1})	Aiming objectives (P_{D1})
Attitude to cooperation (P_{D2})	Attitude to cooperation (P_{D2})	Attitude to cooperation (P_{D2})
Attitude for success (P_{D3})	Attitude for success (P_{D3})	Attitude for success (P_{D3})

Source: Own work

Table 2 Weights of elements of the model of project attitudes (DIA model)

Elements of DIA model	Local weights (%)	Global weights (%)
PROJECT ATTITUDES (P)	100.00	100.00
Disposition (P _D)	26.80	–
Internal stability (P _I)	38.89	–
Activity (P _A)	34.31	–
Aiming objectives (P _{D1})	54.43	14.59
Attitude to cooperation (P _{D2})	23.22	6.22
Attitude for success (P _{D3})	22.35	5.99
Self-control (P _{I1})	26.83	9.20
Self-confidence (P _{I2})	41.15	14.12
Internal control (P _{I3})	32.02	10.99
Planning (P _{A1})	36.93	14.36
Seeking challenges (P _{A2})	22.56	8.77
Striving for development (P _{A3})	40.51	15.76

Source: Own work

$w(C_{ij})$ —the weight of the local component of a lower order, taken into account when calculating the value of the indicator of the higher order [for questions $w(C_{ij}) = 20\%$].

The results of the analysis of the level of intensity of the project attitudes is presented below, taking into account the particular groups of students surveyed (Table 3) as well as selected characteristics of the students (Table 4).

In response to the third research question (DQ3), it is worth mentioning that there is an average level of intensity of project attitudes in the group of students investigated. At the level of the main index, the value of the intensity of the project attitudes is $P = 3.38$ on a scale from 1 (very low intensity) to 5 (very high intensity). Items of project attitudes such as Self-confidence ($P_{I2} = 3.67$), Striving for development ($P_{A3} = 3.55$) and Internal control ($P_{I3} = 3.51$) have the highest level of intensity. However, the least exposed part of the project attitudes is Planning ($P_{A1} = 2.99$).

Responding to the fourth of the detailed questions (DQ4), reference was made to the differences between the two groups of undergraduate students. All in all, there is no significant difference between students studying at the bachelor level. The value of intensity of project attitudes is very similar. For students studying project management it is $P = 3.35$, while for students specializing in *Financial Management* it is $P = 3.34$. Larger differences between the two groups appear for such items of project attitudes as: Attitude cooperation, Seeking challenges and Aiming objectives. In the first case, the difference is $R(P_{D2}) = 0.36$ for students studying project management. The other two elements are much more visible within students of financial management, and the differences are respectively $R(P_{A2}) = 0.19$ and $R(P_{D1}) = 0.17$.

Table 3 Intensity level of project attitudes (DIA model) in the different groups of students—type of study

Elements of DIA model	Total <i>N</i> = 105	PM ug students <i>N</i> = 50	FM ug students <i>N</i> = 50	PM pg students <i>N</i> = 5	Range
PROJECT ATTITUDES (P)	3.38	3.35	3.34	3.96	0.62
Disposition (P _D)	3.34	3.33	3.30	3.72	0.41
Internal stability (P _I)	3.53	3.55	3.46	4.05	0.59
Activity (P _A)	3.27	3.20	3.26	4.04	0.84
Aiming objectives (P _{D1})	3.33	3.22	3.38	3.92	0.70
Attitude to cooperation (P _{D2})	3.33	3.50	3.14	3.36	0.36
Attitude for success (P _{D3})	3.36	3.42	3.28	3.60	0.32
Self-control (P _{I1})	3.33	3.36	3.24	3.92	0.68
Self-confidence (P _{I2})	3.67	3.70	3.61	4.08	0.47
Internal control (P _{I3})	3.51	3.51	3.46	4.12	0.66
Planning (P _{A1})	2.99	2.98	2.94	3.64	0.70
Seeking challenges (P _{A2})	3.20	3.06	3.24	4.12	1.06
Striving for development (P _{A3})	3.55	3.47	3.56	4.36	0.89

Source: Own work

Table 4 Intensity level of project attitudes (DIA model) in different groups of students—chosen features

Elements of the DIA model	Sex			Origin		
	Female <i>N</i> = 88	Male <i>N</i> = 17	Range	City or town <i>N</i> = 38	Country <i>N</i> = 67	Range
PROJECT ATTITUDES (P)	3.37	3.38	0.00	3.47	3.32	−0.15
Disposition (P _D)	3.33	3.35	0.02	3.42	3.29	−0.13
Internal stability (P _I)	3.51	3.64	0.13	3.62	3.48	−0.13
Activity (P _A)	3.29	3.16	−0.12	3.39	3.20	−0.19
Aiming objectives (P _{D1})	3.33	3.35	0.03	3.49	3.24	−0.26
Attitude to cooperation (P _{D2})	3.34	3.25	−0.09	3.20	3.41	0.20
Attitude for success (P _{D3})	3.34	3.46	0.12	3.44	3.32	−0.13
Self-control (P _{I1})	3.33	3.35	0.03	3.40	3.29	−0.11
Self-confidence (P _{I2})	3.64	3.85	0.21	3.69	3.67	−0.02
Internal control (P _{I3})	3.50	3.61	0.12	3.70	3.41	−0.29
Planning (P _{A1})	3.03	2.81	−0.22	2.99	2.99	0.00
Seeking challenges (P _{A2})	3.18	3.27	0.09	3.36	3.10	−0.26
Striving for development (P _{A3})	3.58	3.42	−0.16	3.76	3.45	−0.31

Source: Own work

Then a group of undergraduate students was compared to the group of students studying project management at postgraduate studies. This is the response to the fifth research question (DQ5). Differences between students of undergraduate and postgraduate students should be treated with caution due to a very small group in the latter ($N = 5$). However, a greater intensity of project attitudes within a group of postgraduate students clearly noted. The average value of the intensity of the project attitudes for undergraduate students is $P = 3.35$, while within the postgraduate students it is $P = 3.96$. This is probably due to the experience already gained while working in project teams. The biggest differences between students at the undergraduate and postgraduate level were observed with respect to such elements as: Seeking challenges— $R(P_{A2}) = 0.97$ and Strewing for development— $R(P_{O3}) = 0.85$. While the smallest differences relate to elements such as Attitude to cooperation— $R(P_{D2}) = 0.04$ and Attitude for success— $R(P_{D3}) = 0.25$.

Responding to the sixth research question (DQ6), groups of students separated by gender were compared. It can be stated that there are no differences between these groups. The intensity of the project attitudes for women is $P = 3.37$, while for men— $P = 3.38$. Both groups only slightly differed in respect to an element such as Planning. Men have a lower propensity to planning— $R(P_{A1}) = 0.22$.

Larger differences exist in relation to groups of students separated on the basis of their place of origin. This is the response to the final research question (DQ7). People who originated in a city or town have a higher intensity of the project attitudes in relation to people coming from the countryside. Values are as follow: $P = 3.47$ and $P = 3.32$. Characterizing in more detail, people from a city or town have a higher intensity with regard to such elements as: Strewing for development, Internal control, Aiming objectives and Seeking challenges. The differences are as follows: $R(P_{O3}) = 0.31$, $R(P_{I3}) = 0.29$, $R(P_{D1}) = 0.26$ and $R(P_{O2}) = 0.26$. People from villages are however, more likely to cooperate—the difference in terms of Attitude to cooperation is, in their case: $R(P_{D2}) = 0.20$.

7 Conclusion

In summarizing this paper, attention can be paid to a few basic issues. Comments are presented addressing the cognitive, methodological and implementation dimensions. Then the most important limitations of the study, as well as further plans, are pointed out and presented for the improvement of the proposed approach.

Referring to the cognitive conclusions, it must be firstly stated that the level of intensity of the project attitudes in the group is the average. Visible, however, is a significant increase in the intensity in the case of postgraduate students who already have experience with project management. Although the applied control group is small, it is a phenomenon that should be taken into account in subsequent studies. Secondly, there were no significant differences between the intensity of attitudes among the students in the specialties of *Project Management* and *Financial Management*. The greatest difference was Attitude to cooperation and may be associated

with the different mode of work of students in the classroom. Students specializing in *Project Management* more often work in teams.

The methodological issues based on the method of AHP allowed for a definition of a model of project attitudes and verification of the significance level of its individual elements. Complemented with it were research surveys that allowed assessment of the level of intensity of attitudes. Thus, the obtained values were adjusted for the weights resulting from the verification of the level of significance. This procedure enables a more accurate reflection of project attitudes. The entire procedure used is consistent, clear and relatively easy to implement.

The presented concept of the project attitudes seems to be interesting from the point of view of management practices within projects. Firstly, it appears that even now, this initial version is relevant in measuring the attitudes of people who will be participating in projects. Secondly, the procedure tested is relatively laborious on an acceptable level. Thus, it can be used in the realities of the company without the raising of costs. All this means that its implementation may contribute to a better selection of employees for the project and that it can be effective.

The conducted study has many limitations. The first is the structure of the model. It is, at present, quite limited and based only on a preliminary analysis of the phenomenon of attitudes. In particular, operationalization of the various components of attitude requires refinement. Moreover, the study was carried out on purposeful and small samples. The results of the measurement and the observed trends must therefore be assessed and interpreted in a very cautious manner.

The direction of the research taken related to individual characteristics conducive to the smooth functioning of people within the project team seems to be very interesting. The potential for implementation of this approach is immense. Therefore, further tests to expand it should be conducted. Firstly, the development of a model of project attitudes is planned, and then perhaps extending it to other individual characteristics. The use of other methods to identify the dimensions of the research problem should also be considered (e.g. on the basis of statistical analysis). It is also necessary to verify a new model through research conducted within much larger groups.

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Selected Aspects of Network Structure Dynamics

Beata Barczak

Abstract The article encompasses the description of selected issues related to the dynamics of organizational networks. Referring to issues related to the chaos theory, the factors stabilizing and destabilizing cooperation within organizational networks have been discussed, and subsequently, the concepts and selected models of the dynamics of organizational networks have been presented. In the further part, the article presents the problem of defining boundaries of networks, indicating the controversies and approaches related to this issue.

Keywords Network structure • Network dynamics • Boundaries of organizational networks • Dynamic system

1 Introduction

The emerging network paradigm directs the attention of researchers towards the efficiency of cooperation and the factors stabilizing and destabilizing cooperation in inter-organizational networks. In fact, the stability and instability factors are at the center of the contemporary research into inter-organizational networks, but they are still merely fragmentarily—conceptually and empirically—recognized.

An interesting and yet specific area of research is the study of organizational network dynamics. A skillful use of the knowledge of these phenomena for the purposes of effective organizational network management should be considered particularly important. Therefore, we should take into account both the assessment of the actual and potential network efficiency (network design, anticipating scenarios of events occurring within the network in IT, business or social terms).

The article encompasses the description of selected issues related to the dynamics of organizational networks. Referring to issues related to the chaos theory, the factors stabilizing and destabilizing cooperation within organizational networks have been discussed, and subsequently, the concepts and selected models of the dynamics of organizational networks have been presented. In the further part, the

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article presents the problem of defining boundaries of networks, indicating the controversies and approaches related to this issue.

2 The Concept of Organizational Network Dynamics

The dynamics of any system shall mean any change of this system observed in the time interval occurring under the influence of all driving forces (i.e. factors) affecting this system (Van de Ven and Ring 1994; Gargiulo and Gulati 1999). A development of any system involves the chronological sequence of changes of this system, wherein the change applies to all observable transformations (form, characteristics, status) of this system (Van de Ven and Poole 1995) In this sense, the dynamic system¹ should be understood as a system whose development occurs under the influence of all the driving forces (i.e. factors) affecting this system.

The following situations are possible in organizational systems: the system is close to equilibrium with the environment, which means that any interference which is common for both will not hinder their transition to the next state of equilibrium; the system can be far from equilibrium, when the factors interfering with the equilibrium cause a situation in which the system is close to the second extreme, i.e. non-equilibrium. From the point of view of system dynamics, Stacey (2003) identified three types of changes:

- Closed, which occur in conditions characterized by certainty that they will occur, they are predictable and relationships between the causes and effects are linear,
- Limited, which apply to situations in which the direction and substantive content of these changes can be determined with a certain probability, which means that it is possible to predict the likely behavior of the system. The system generates a set of actions that are supposed to lead to a state of equilibrium.
- Undefined, which occur in situations in which you can only guess what will happen in the future, what the nature of relationships between causes and effects will be. Under these conditions, it is impossible to accurately predict changes in the system and control it. There are two types of a lack of equilibrium: it is characterized by cyclical or cumulative changes, described using trends or results from irregularities of behavior caused by other changes disrupting these cycles.

¹A *dynamic system* is a pair (X, T) where X is a certain set (referred to as a *phase space*), and T is a group or a semi-group of X transformations into itself. In the classic example of a *cascade*, these are the iterations of a single transformation (then T denotes this transformation). Usually, the space X is provided with some kind of structure, and the transformations of the T group retain this structure. The theory of dynamical systems is an interdisciplinary field in which the research methods from many branches of mathematics are applied. It is a theory that has rapidly developed over the last few decades, and it competes successfully in terms of applications for describing and predicting phenomena occurring in the reality with statistical and even numeric methods.

The optimum state for modern enterprises is a dynamic equilibrium, behind which there is a subtle form of organizational order. Then it is possible to maintain a constant organizational readiness for changes, appropriate degree of flexibility and the inventories of the necessary creativity potential. A dynamic equilibrium of the organization can be considered as an alternative position between stabilization and shocks, in which the system, stabilization around the equilibrium, reaches a state for certain situations and in certain time horizon, which is more important to the organization than routine operations. Then the organization finds its natural and individual dynamics, which is between stability and change.

The dynamic equilibrium has features of a game of opposites: a state of equilibrium with a state of non-equilibrium, without which any development of the organization between stability and change is impossible. Each of the opposites has a momentary advantage, as a prolonged dominance of one of them is not possible due to the dynamics of the interior of the organization and its surroundings. Therefore, there is a relative harmony in the sphere of dynamic equilibrium, which has a positive meaning for the organization.

The dynamics of the system induce tensions in the system of behaviors resulting from arising contradictions. On the one hand, they are a factor causing tensions but on the other hand, they release energy which is the causative agent of behaviors. It is possible to compare the two states of the system and then we make their comparative assessment at two points on the timeline. It is also possible to deal with the path for the system to follow between successive, highlighted states. This following is the result of feedbacks. Therefore, examining the dynamics of organizational networks as a complex adaptive system, it is necessary to answer the questions similar to the ones posed in the case of the traditional management system (Rokita 2009):

- Does the system change and are these changes possible to capture (e.g. two states of the system in a specific period of time)?
- Is shifting between these two states characterized by a constant and uniform motion, or not?
- It is predictable or not?

The dynamics of systems in management sciences was initiated by Forrester (1958), and then propagated by Senge (1990). They noticed that the feedback structure generates behavioral patterns. This results in difficulties in finding the cause-effect relationships generating behaviors. The effects of actions often arise after a certain time, which also makes it difficult to identify the causes.

The network structure includes also a dynamic network of flow of innovation and knowledge, in which self-reflection processes become the key skills and conditions for creating streams of innovation and knowledge (e.g. the ability to separate old knowledge from new knowledge) and creating relationship networks of innovation and knowledge (e.g. the ability to conclude innovative agreements which cannot be reduced to arrangements in writing) (Barczak 2017). Creating a dynamic network is closely related to the concept of organizations in motion by Mastyk-Musiał (2003) which seems to be particularly adequate for explaining the

operation of companies in the Internet age and the wave of change experienced by them. These organizations have in fact a feature and built-in mechanisms that allow self-organization, without which it is impossible to implement changes. In turn, understanding the phenomenon of self-organization is impossible without explaining what the organizational culture is and what role it plays in employee's identification with the company, especially when their company exists often more in cyberspace than in real dimensions.

3 Factors Stabilizing and Destabilizing Network Cooperation

The emerging network paradigm directs the attention of researchers towards the efficiency of cooperation and the factors stabilizing and destabilizing cooperation in organizational networks.² The stability and instability factors are at the center of the contemporary research into inter-organizational networks, but they are still merely fragmentarily—conceptually and empirically—recognized (Klimas 2014).

Stability is a crucial parameter of organizational networks affecting their effectiveness. The stability of networks can be considered in its narrow or broad sense. In the first case it refers to the invariability of networks considered from the viewpoint of the number of knots and connections between them (Oh and Jeon 2007). In a broader approach, the complexity of stability related to the constant modelling and constitution of a network aiming to optimize its structure (Kilduff et al. 2006) by accepting new members, resigning or excluding actors from the network (Dhanaraj and Parkhe 2006) and stimulating actors to create new or strengthen the existing bonds in the network (Huggins and Johnston 2010) is emphasized. Therefore, the network stability refers to its membership, structure, and type of bonds. A network is called stable when the variability is minor and planned by the participants, and unstable when changes are frequent and unplanned (Czakon 2012). It is assumed that the network stability is determined by: an existing system of relationships between the actors, competency and cognitive homogeneity of actors, convergence of particular objectives of individual actors (Kilduff et al. 2006) as well as their

²Both the practice and the research results indicate the diversity of factors that underpin the development of the network. However, none of them can be considered as dominant. One can rather talk about a set of interacting factors that generate the dynamics on the basis of feedback. Furthermore, with the development of the network, its different components become meaningful and for various reasons their strength over time can vary. Critical factors of the development of networks affecting their dynamics include among others: proximity to the market of purchasers, availability of skilled workforce, proximity to other enterprises, facilitated access to the research sphere, image, and reputation of the geographical area, access to regional and international transport networks, availability of lands and premises, support of public administration (e.g. financial support for functioning and/or projects), proximity to raw materials, presence of facilitations in the field of supporting activities.

general willingness to continue to cooperate in the network (Ritala et al. 2009) Over time, networks may increase their level of stability (stable networks) or be subject to destabilization by frequent and unplanned changes (unstable networks). The level of network stability is therefore dynamic and is shaped by the variability of membership in the network and variability of structure and contents of bonds co-creating the network.

It is worth emphasizing that the stability of networks cannot be considered a goal in itself. It is more of a resulting variable of objectives pursued by the network. However, while stability is an assumption of the organizational theory, in the network theory such a dogma is flexibility or a lack of stability (Czakon 2012).

According to Kauffman (1995), in a narrow range between stability (a state of order) and instability (a state of disorder), there is the largest number of effective relationships between various elements. Their co-existence, balance or existence of certain proportions can be the basis for identifying a specific range, area of the arrangement of organization, referred to as the edge of chaos. From the formal point of view, chaos, and more specifically deterministic chaos is a property of systems of equations, usually the differential and non-linear ones of a dynamical system. It is based on the instability of solutions when changing initial conditions. From the substantive, qualitative, but also theoretical point of view, it is assumed that the chaos does not mean a total mess. According to the majority of approaches, this term covers such dynamic phenomena which contain hidden order. Therefore, for some time now there has been an increase in interest in the potential application of the chaos theory in management, especially in the context of increasing turbulence of surroundings of an organization (Krupski 2014).

Organizational networks can certainly be classified as a complex adaptive systems. Krupski (2005), Müller (2000), Rokita (2009), and Stewart (1996) emphasize the importance of the chaos theory for understanding this type of system, where complexity should be considered as a relative term, which depends on:

- The number and nature of interactions between the variables;
- The system type (open, closed)
- The type of relationships between the variables (linear, non-linear)—in linear systems
- The value of the entire system increases as a result of addition of value of its components, in the non-linear systems properties emerge as a result of interactions between the system components
- The entirety is the result of interaction between the components,
- Allocation in time of the reaction to the system activity (direct or indirect, immediate or delayed responses).

The organization is a network of non-linear feedback loops.³ When those loops are dominated by negative feedback, the organization is in a stable state. When

³Feedbacks determine the behavior of the system; there are behavioral patterns of systems based on those feedbacks. Observations concerning the feedback loops were presented by Forrester (1958), who stated that the simple reinforcing (positive) or weakening (negative) feedback loops

the loops are formed by the positive feedback the organization becomes unstable (Rokita 2009). Interactions of feedback loops that are in opposition to each other or neutralize or balance themselves constitute the basic source of chaos and complexity. Their understanding is the basis for coping with the complexity and interdependence of the system components.

Brown and Eisenhardt (1998) presented a model of organization on the edge of chaos, using the concepts related to the theory of non-linear complex systems, especially the chaos theory and the theory of complex adaptive systems (they consider them as metaphors allowing to illustrate and explain the phenomena occurring in the organization). In the concept of Brown and Eisenhardt (1998), the edge of chaos can be intuitively defined as a state in which the strategy and, in general, the organization is structured enough to allow the change to occur in it, but not enough to prevent the occurrence of change. According to the aforementioned authors, the organisation operating at the edge of chaos is characterized by several unique features (Brown and Eisenhardt 1998)

- Unpredictability—the organization on the edge of chaos cannot act in a defined manner, the future is too unpredictable and the operation of the organization should rather involve experimentation and continuation of the most effective actions,
- Limited control—the organization cannot be controlled and monitored by the management board in a precise manner, too many changing factors prevent the response from being effective enough,
- Short-term ineffectiveness—the organization operating on the edge of chaos is constantly looking for solutions and experimenting, and this type of activities is associated with a short-term increase in costs,
- Activity—the organization on the edge of chaos cannot passively wait for the market changes, but it must anticipate them and, if possible, lead these changes,
- Continuity—changes should constitute a continuous process, they should not involve spectacular projects taking place over long time intervals, diversification—the organization should “sample” its surroundings by performing a large number of differing market measures aimed at verifying multiple business opportunities.

Krupski (2014) presented another model of organization on the edge of chaos. According to the author, an organization on the edge of chaos can be regarded as a

generate behaviors different than expected. The behavioral patterns of systems based on both positive and negative feedbacks can be used to examine any system, as various systems may show and often show the same behaviors, despite the completely different nature of the problems occurring in them. In the case of organizational networks (in a dynamic sense), network relationships include feedbacks of activities which create new values and constitute the essence of improving the operation conditions of the entire network. Relationships of subjects cause specific positive effects of a spontaneous nature that are somehow unconsciously absorbed by the participants. They can also be a source of multiplied benefits, but then they require from members of networks taking active measures in order to obtain additional value.

metaphor for an organization with certain characteristics, i.e.: innovation, entrepreneurship, and flexibility. Since the beginning of the process of changes in the organization, e.g. consisting of a significant enlargement of its flexibility (to the limits of cohesion of the organization), we are moving in the direction of the edge of chaos which is, however, vaguely specified. The model presented by Krupski (2014) is contained in four dimensions: (1) a basis for thinking and reasoning (creativity, going beyond stereotypes, lateral thinking), (2) the use of power resulting from the position in the organization (self-assembly compatible with the theory of complexity, and in particular the theory of complex adaptive systems) (3) dominant sources of effects of the organization (individual work, aptitudes of individuals) (4) a basis for the development (the emergent strategy, both in terms of markets, products and resources, development through an unplanned use of opportunities).

In summary, the management of network stability bears the hallmarks of a strategic paradox, since it requires continuous balancing between full stability and extreme dynamics, instability and chaos (Ritala et al. 2009). In terms of the chaos theory, a cooperation network should function on the edge of chaos, i.e. the partial order and disorder, i.e. permanent, although intentional structuring. Only then it is possible to achieve an optimum level of stability favorable for maximizing the efficiency and generating the competitive advantage of the network (Krupski 2010).

4 Concepts of Network Structure Dynamics

The launched and ongoing research aiming at conceptualization of the dynamics of network organization makes it possible (on the basis of epistemological and empirical research) to distinguish concepts of the dynamics of network organizations in the following approaches: cyclical, sequential, theological, dialectical, and evolutionary (Galaskiewicz 1985; Granovetter 1994; Dyer and Chu 2003; Van de Ven and Ring 2006).

The cyclical concept of the dynamic network organization explains the development mechanism of the network organization as maintaining dynamic equilibrium between relationships based on formalized commercial contracts and relationships based on non-formalized social contracts. The decline of the dynamic network organization may be caused by a significant disturbance of the balance between the relationships based on commercial contracts and relationships based on social contracts. This disturbance may be the result of events of endogenous or exogenous nature. The cyclical mechanism of network growth involves maintaining by the network the dynamic equilibrium while aiming at a maximization of intensity of all network relationships and global connections.

The sequential concept of the dynamic network organization explains the mechanism of “birth” of a dynamic network organization. The sequential concept explains that the formation of a network organization is based in equal measure

on strategic and social factors. The sequential approach by Gargiulo and Gulati (1999) indicates the process of network organization development, which consists of subsequent sequences including both the factors affecting the strategic interdependence of companies and their social relationships. The presence of strategic interdependence explains the existence of a propensity of companies to enter into inter-organizational relationships. Strategic interdependences are a necessary condition for the commencement of the network organization forming process.

The teleological approach assumes that the company, usually with other business partners, creates a vision of the end state of development and subsequently takes the steps necessary to achieve these objectives. In this model, strong tools are created for monitoring the progress of reorganization and implementation of changes into business practice. The precursors of this concept assume development as a repeating sequential series of actions, which consists of: formulating objectives, implementation, evaluation, and modifications of an objective on the basis of the experience gained.

The possibility of continuous evaluation of the implementation state, that is the determination of the development stage of the company is an advantage of the teleological model.

The main assumptions of this approach are as follows:

- The development of an organizational unit progresses in the direction of a specific goal or desired end state;
- Each organizational unit is purposeful, adaptive, conscious, and equivalent,
- The development constitutes an iterative cycle: formulation of objectives, implementation, evaluation and modification of objectives based on what an individual has learned and what it has intentionally pursued,
- There is no single trajectory of development, but there are processes or collections of them (processes of management or learning) that are necessary to implement,
- The environment limits the development possibilities of individuals,
- Equilibrium states are not permanent, after the achievement of the objective it is usually socially reconstructed.

The basis of this theory is not so much of the optimal trajectories, but more of an optimal behavior of the organization in the form of a rational decision, rationality of actions or learning.

In the dialectical approach it is assumed that the environment in which the company operates is highly diversified and that there are dramatic events, and the influencing forces have a different direction. The dynamism of pressure alone can usually have contradictory trends and there is a need for the so-called “collision,” and selecting solutions treated as a specific resultant of interactions. Van de Ven and Ring (1994) state that the dialectical model works well in situations in which several organizational units constitute the subject of changes, and there is a possibility of analyzing the occurring: contradictions of objectives, confrontations of ideas, and phases of conflicts. In this model, the stability and change are

explained by a reference to the dialectical theories mainly related to resolving conflicts of attitudes and teams (organizational units). This model assumes that the stability and development include a reconciliation of contradictions, struggle and compromise, and the change occurs when the opposing values and forces that prefer it receive sufficient incentives to act (there is a possibility to use the thesis and antithesis).

Therefore, the dialectical approach constructs a paradigm of strategic contradictions. The assumptions are as follows:

- The organization exists in a pluralistic world of contradictory phenomena, forces, and values that compete for dominance,
- Contradictions may occur in the interior of the organization, which reflects the conflicts of interests of individual social groups,
- Contradictions may occur outside the organization in the form of striving to achieve the same objectives by different subjects,
- The equilibrium of forces is a cause of stability and a change is explained by a disturbance of this equilibrium,
- The effect of the disturbance of equilibrium may be: the synthesis of thesis and antithesis, or domination of antithesis over the existing thesis. The conflict may be either creative or destructive.

In the process of changes, the evolutionary approach uses the so-called accumulation of improvement processes based on: crossing, reproduction, and mutation. Diversification is understood here as a stage of accidental opportunity and selection is created by pressure of competition and the difficulty of access, especially for rare supplies. In this model, the environment in the improvement process eliminates companies, the results of which deviate from the results accepted by the economic environment. The evolution model assumes that change is a periodical process and it returns after certain time intervals as a result of accumulation and development of probabilistic sequences, resulting mainly from improving selection.

This approach results in the adoption of the ecosystem paradigm. It is based on the following assumptions:

- The change occurs in the following cycle: variations, selection, retention,
- Retention constitutes a counterweight of variations and selection so as to enable some variants to survive,
- Change is a stochastic process, you can predict changes in the characteristics of the total population with a given probability, but it is not possible to predict changes of a particular unit,
- Dynamics is a property of a collectivity.

5 Evaluation of Selected Models of Network Structure Dynamics

Contemporary concepts of the network structure dynamics are essentially focused on the cyclical and sequential approaches. Two concepts are exceptionally noteworthy among the various approaches found in the source literature:

- The concept of dynamics of network organization by Van de Ven and Ring (1994) (the cyclical approach)
- The concept of dynamics of network organization according to Gargiulo and Gulati (1999) (the sequential approach).

According to the concept of dynamics of network organization by Van de Ven and Ring (1994), the process of the network organization development consists of the following cycles of consecutive three phases: negotiations, demonstration of propensity for implementation of the joint strategic plan, and joint action. Each phase of the cycle is evaluated by the entities of network organization in terms of their effectiveness and sense of fair play. The period required for the completion of a particular phase of the cycle is dependent on the risks associated with entering into inter-organizational relationships and on the degree to which enterprises have to rely on mutual trust.

The sequential approach by Gargiulo and Gulati (1999) indicates the process of network organization development, which consists of subsequent sequences including both the factors affecting the strategic interdependence of companies and their social relationships. The presence of strategic interdependence is explained by the existence of propensity of companies to enter into inter-organizational relationships. They are a necessary condition, but not a sufficient one for the network organization to be established. For example, if the strategically interdependent enterprises implemented any common interests in the past, the contacts established previously by these companies strengthen their willingness to re-enter into inter-organizational relationships. Examples of implementation of the common interests are any forms of operational cooperation, strategic cooperation based on commercial contracts, affiliation to the same industry associations, conducting joint R&D activities, etc. Mutual trust allows to reduce the risk of occurrence of opportunistic behavior on the part of potential partners. A special role in the process of building mutual trust is played by interpersonal relationships previously established by the people creating or representing the companies. A social structure within which the potential partners operate plays an important role in the formation of the network organization. The greater the complexity of the existing social structure, the greater the diversity and wealth of the available information about companies and the easier it is for the potential partners to decide on the common formation of the network organization or joining an existing network organization. Entering into strategic relationships with partners occupying a peripheral position in the existing social structure can mean a deterioration of the current position of the company in the social network of newly formed network organization. Whereas entering into

strategic relationships with potential partners occupying a more central position in the existing social structure can mean an improvement of the current position of the company in the social network of a newly formed network organization. However, such a situation is highly unlikely, as it would mean the readiness of the potential partner for the deterioration of their social position. A company occupying a certain position in the existing social structure will enter with a high probability into strategic relationships with potential partners occupying the same position in the existing social structure. This regularity applies to partners occupying arbitrary positions in the hierarchy resulting from the division of labor (i.e. subcontractor/supplier/customer).

Summarizing the above considerations, it must be emphasized that so far in the literature there are few descriptions of the mechanism of network organizations development. Most of them relate mainly to the descriptions of the mechanism of cluster development. Both presented models are based on the equality of roles played by strategic and social factors of network development. From this point of view, they should be considered as adequate for the description of dynamics of organizational networks, which requires simultaneous consideration of all the factors affecting changes in the organizational network (i.e. factors affecting both changes in the strategic interdependence and social relations) and explaining how they “connect.”⁴ Both concepts fit into the contemporary trend of research on the dynamics of organizational networks.

The cyclical concept of the network organization dynamics explains the mechanism of development of a network organization as maintaining dynamic equilibrium between relationships based on formalized commercial contracts and relationships based on not formalized social contracts. In the study of organizational networks this model can be used for identifying the current phase of network development and determining the possible scenario of further growth of the network. Elucidation of the cyclicity mechanisms of organizational network development can also be useful for the design of cooperation networks. In the evaluation of effectiveness of network structures, a definition of the current development phase may determine the choice of indicators for evaluating the effectiveness of an organizational network.

One drawback of the described model is that the shown cyclicity of the network growth process does not fully explain why only some of networks are still able to grow and adapt to changes in the environment, while for other networks entering the phase of maturity involves stability and inevitable decline. Thus, this model does not explain the dynamics of networks (e.g. clusters) maintaining their vitality for dozens or hundreds of years. A cyclical mechanism of maintaining dynamic equilibrium may, however, provide a basis for creating models of the

⁴It should be added that the descriptions of organizational network development presented earlier in the literature (e.g. Porter 1990) describe its development only within a certain time period. It is impossible to draw conclusions on their basis, either about the past or the future of a network organization. These are the so-called kinetic descriptions of network organization development which do not explain the manner in which this development occurs.

network dynamics explaining the long process of creating the network and its ability to adapt to a changing environment. The possible scenarios of cyclical growth of the cluster described in the literature (Góra 2008) show that the appearance of endogenous and exogenous disorders does not necessarily lead to the disintegration of the cluster, and achieving maturity phase by the network does not necessarily lead to its decline. The model of cyclical network development can be considered as a concept which to some extent contributes to a better understanding of the network development mechanisms, understanding possibilities, and the need for a “rebirth” of the network. The presented model can also provide a basis for the construction of a methodological tool allowing to conduct an empirical study of the properties of a network in terms of its dynamics.

In contrast to the cyclical concept of the network dynamics, the sequential concept explains mainly the mechanism of “birth” of an organizational network. In the light of the sequential organizational network dynamics model, the genesis of the network can be explained as sequences describing the formation of relationships within the spatial cluster of entities. The already mentioned equilibrium of strategic and social factors is the advantage of this model—the formation of the organizational network is based equally on both groups of factors. In turn, the weakness of this model is the fact that although it explains the tendency of entities to enter into inter-organizational relationships, it does not explain how these entities cope with the problem of choosing partners, nor how the established inter-organizational relationships are maintained and developed.

6 Boundaries of Organizational Networks

In the management sciences, organizations are perceived as entities that have clearly defined boundaries. The significance of boundaries in the functioning of the organization has led to attempts to define them in a multi-faceted manner and indicate their different types, which does not alter the fact that it is an ambiguous and imprecise category (Kawa and Pierański 2014). In many approaches the boundaries of the organization are treated as a mechanism for extracting the organization from its surroundings. One example of this is the definition of Llewellyn (1994), according to which the boundaries of the organization, being mechanisms of extracting the organization from its surroundings, provide the ability to perceive the organization as a kind of entirety. Every organization has its own unique system of boundaries, on the one hand, enabling it to maintain its identity, on the other hand—being a tool for shaping relations with the surroundings. The boundaries are in fact:

- Demarcation lines treated as areas in which the organization ends and the surroundings begin; they help distinguish one social organization from the other (Pfeffer and Salancik 1978).

- A pattern of functioning of the organization that determines both the ways of structuring and the mechanisms of interaction of the organization with the environment (Ashforth et al. 2000),
- Areas demarcating the organization and the surroundings, which relate to the four dimensions of functioning of the organisation: efficiency, power, competence, and identity of the organization (Santos and Eisenhardt 2005),
- A mechanism for the integration of the organization with its surroundings that allow for the implementation of measures aimed at ensuring the survival and development (Cyfert 2012).

Altogether, the boundaries are a system ensuring the internal cohesion of the organization and the required level of adjusting to changes occurring in the surroundings. The boundaries of the organization, determining the scope of impact of the organization, constitute a mechanism of integration of the organization with its surroundings, allowing the implementation of measures aimed at ensuring the survival and development, whereas the boundaries of the organization can be perceived in terms of the internal mechanisms of demarcation of activity areas of the organization from integration mechanisms of organization's components (Cyfert and Krzakiewicz 2009).

The main causes of boundaries involve clear and understandable distinction between activities of the company involved from the activities implemented by other units, distinction of environmental conditions in which the activity is carried out, its division between the different organizational units and individuals, and allocation of decision-making powers and responsibilities between those individuals. Without making those distinctions, the diversity of tasks (in accordance with the skills of the employees), coordination of the use of resources and employee skills and, consequently, business management of the entire organization would be fundamentally complicated.

The search for boundaries of the organization is one of the problems of the management ontology. In the management sciences the concept of boundary of the organization is very often used and even overused in those studies. Therefore, errors in defining the boundaries of the organization most often arise from:

- Using the concept of the boundary without the terms describing the distinctive feature,
- An absence of a boundary of the point of reference in the description,
- Adoption of the thesis that in the management sciences there is one and unambiguous definition of the organization,
- Abstracting from the section of object analysis,
- Confusing attributes of blurring and dilution of boundaries with the attribute of flexibility or shifting borders,
- Confusing attributes of blurring and variability of boundaries with the attribute of greater complexity of relationships of the organization with its surroundings, or a larger dependence between the surroundings and the organization.

If in the case of defining the boundaries of the organization there are so many controversial approaches, then the problem of describing boundaries of inter-organizational networks, that is the entities that are more complex than traditional organizations, seems to be even more complicated. Compared to defining boundaries of the organization, a small number of studies concerns the problem of boundaries of the organizational networks (Kawa and Pierański 2014). Presumably, the main reason for this situation is the ongoing dispute about the existence of network boundaries. Some researchers believe that networks have no boundaries. In this approach the feature of infinity is assigned to networks, which means that they have neither the clearly identified end, nor the designated structures (Ratajczak-Mrozek 2010; Barabási and Bonabeau 2003). They arise as a “grassroots initiative” of market operators that establish relationships with other market operators. With this assumption, the definition of boundaries is obviously pointless. On the other hand, the literature indicates the opposite trend, according to which the network boundaries exist. In this trend it is assumed that in order to properly describe a business network, it is necessary to identify those boundaries (Niemczyk et al. 2012). However, the awareness of the need to determine the network boundaries is not reflected in the number and quality of their definitions. Based on the very few definitions of the network boundaries, it can be assumed that their essence lies in the separation of companies belonging to the network from those that do not belong to it (Smith 2013). From the point of view of defining the network boundaries, when discussing the networks, it is usually assumed that it is a set of relationships between organizations (inter-organizational networks) or systems with features of the network. The boundaries in such systems will be the boundaries separating individual network objects (i.e. in terms of organizations in the institutional approach) or the boundaries of entire networks (defined rather in terms of the whole organized action), separating them from other networks. In both cases, these boundaries will be more intentional than real.

In the case of inter-organizational networks, when determining the boundaries, the same mistakes as when defining the boundaries of the organization can be made. Identifying network boundaries in a correct way requires asking oneself questions concerning:

- The type of specific section of analysis of the boundaries,
- The object with which the network will border,
- The definition of the approach to the network of interest to us,
- Whether we are interested in static or dynamic approach to the boundaries,
- Whether the network will be analyzed in a simplified form possessing characteristics of a model, or rather in all its complexity,
- The aim of the conducted research.

Obtaining the answers to these questions may in a fundamental manner reduce the number of substantive errors possible to be committed in the conducted research, as well as reduce the likelihood of falsification of its results.

The literature suggests two approaches to determining the boundaries of the network: realistic and nominal. The essence of the realistic approach is to determine

the boundaries of the network by its participants. Therefore, it is possible to assume that this is the approach “from within.” The nominal approach is referred to as the “research” approach. This is due to the fact that a researcher working “from the outside” indicates the boundaries of the network. In this case, the network boundaries are determined by the purpose of the study, which in turn determines both the subjective scope of the network and the considered subject of the relationships. Without prejudging the rightness of any of those approaches, it is clear that they are characterized by a high degree of subjectivity. The network boundaries determined by the researcher (the nominal approach) may not coincide with the boundaries determined by the entities belonging to the network (the realistic approach). In an extreme case, each of the entities forming the network can determine different boundaries (Kawa and Pirański 2014).

Due to the specific features of the network structures, determining their boundaries must take into account the fact that:

- A network can be a part of a larger whole,
- Particular network elements can be a part of various other networks,
- Cross-coupling may occur between particular network elements,
- Since relative agreements, despite their long-term nature, belong to a group of contracts concluded for a specified period, hence the networks will show a considerable variation in time,
- Networks may vary due to the number and the level of complexity of the relationships with the environment.

The networks as an object of study can therefore be distinguished mostly intentionally.

Analyzing the organizational networks, when determining their boundaries it is also necessary to be guided by certain premises, namely—a designated network boundary can be a derivative of:

- The adopted purpose of research (other boundaries will be assumed if the purpose will be to search the efficiency of the entire network, others if the goal will be to study the effectiveness of the dominant only, and yet others if are interested in the entirety of the organized activities (the whole value chain) or only certain fragmentary activities,
- The adopted time perspective of the analysis (different boundaries will be present in a static system, and different ones may occur in dynamic systems),
- The adopted analysis section (different boundaries are determined by the ownership right, different ones due to the participation in a common enterprise, different ones will be a derivative of the relative agreement series analysis, and the economic, organizational, and legal boundaries can also be different).

Searching for the organization boundaries in organizational networks is undoubtedly a very complex issue. This problem is mostly considered by the authors who point out the phenomenon of blurring the organization boundaries (Perechuda 1998; Kostera 1996; Hatch 2002; Brilman 2002). Blurring of boundaries means that the existing behavioral patterns governed by the: vertical

boundaries—between the individual hierarchical levels and positions; horizontal boundaries—between functions and industries; external boundaries—between the company and suppliers and customers, and geographical boundaries—between places, cultures, and markets will be replaced with the ability to move freely between the boundaries (Ashkenas 1998). If these boundaries remain rigid and impermeable, the organization will not be able to adapt to changes and match the competitors. With regard to the future shape of the organization, the literature contains views claiming that the future organization will have boundaries solely in the sense and to the extent that is necessary for the preservation of its identity. In all other meanings it will be either free of boundaries, or they will be variable, or its boundary will be the sum of boundaries of the network elements. The concept referred to as a boundary-less organization constitutes an approach to the organization that develops, but the location of the existing boundaries may change (Robbins and Coulter 2007). An example of this might be the reduction in the number of levels between the senior management and executive positions located at the bottom of the hierarchy of the organizational structure. Another example is combining various functions to utilize diversified skills of people implementing different functions. Such an approach is reflected by, among others, the assignment of groups of people representing different functions to the implementation of various processes in the company. As pointed out by Ashkenas et al. (1998), the basic assumption of applying the concept of a boundary-less organization is not to eliminate all boundaries present in such an organization, but to ensure their “permeability.”

7 Summary

The considerations presented in this article lead to the conclusion that the network organization is a complex dynamic system which should be analyzed through the prism of such characteristics as openness, flexibility, and development capabilities. In addition, the need to adapt to changing operating conditions causes the permeability and flexibility of organizational network boundaries. It should be emphasized that the problem of determining boundaries of organizational networks is quite a complicated issue that has not been subjected to any deeper analysis. In the literature there is an ongoing dispute over the network boundaries—infinity of networks (e.g. the scale-free networks) and a lack of defined structure, there is a problem of “vagueness” and blur of the network boundaries. The problem of determining the boundaries of organizational networks is still waiting for a comprehensive analysis. The existing results of research show that there is a significant gap of knowledge in this field.

Acknowledgement The article was developed in the framework of the project entitled: Model assessment of efficiency of business networks. The project was funded by the National Science Centre allocated on the basis of the decision number DEC-2013/11/B/HS4/01030.

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The Impact of Cultural Attitudes Toward Environmental Issues on the Green Entrepreneurship Entry Level: A Comparative Study of Three European Countries

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Abstract Recently, the topic of green entrepreneurship, even green nascent entrepreneurship, has been gathering momentum and emerging as a reality, which may play a major role in the development of a more sustainable global economy. This article focuses exclusively on the so-called green-green companies, therefore on companies that were conceived with an ecological approach since their beginnings. Numerous studies lend support to the argument that social norms, which certainly are a manifestation of the given cultural context, are among the most significant determinants of entrepreneurial activity. The objective of this study is to explore how the cultural factors, which influence the attitude toward environment, may or may not affect the ratio of green entrepreneurship initiatives in a region. Consequently, we try to answer as well the question if there are cultures more likely to start green enterprise ventures than others do. Apart from exposing the recent efforts to find the connection between environmental attitudes and green entrepreneurship commitment, this papers offers data collected in Spain, Portugal and Austria regarding four variables: environment legislation, non-governmental initiatives to preserve the environment, ratio of sustainable cities and measures undertaken in environmental and ecopreneurship education. These variables evidence the embedded environmental awareness in the three different cultural areas. The methodological approach consists of an exploratory data analysis in order to unveil the kind of relation between the above-mentioned variables and the green entrepreneurship initiatives in these regions. The results do not show a clearly positive relation between a friendly culture toward environmental aspects and the

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rate of green entrepreneurial initiatives and further research much be done to investigate if there is however a cause–effect influence but in a longer time span. The authors still believe on the important part played by culture not only in the level of business venture creation, but also in the type of venture initiatives.

Keywords Ecopreneurship • Sustainability • Culture • Green business nascence • Social norms

1 Introduction

Independent of the perspective approach to elucidate the essence of entrepreneurship the underlying questions behind every explanation attempt are the why, how, when or where entrepreneurs discover and exploit opportunities (Shane and Venkataraman 2000). Who is considered an entrepreneur and which common characteristics determine entrepreneurship activity isn't yet unequivocally defined in the theoretical body of entrepreneurial research. As Sarasvathy (2003) points out, few other groups of human beings have been scrutinized as a group for psychological differences from others as the group consisting of entrepreneurs.

Following Thornton (1999) the entrepreneurship literature can be roughly classified into a supply side perspective that examines the personality traits of potential entrepreneurs and the demand perspective that looks at the nature of entrepreneurial roles that need to be accomplished in a society in order to prosper. From the supply side the psychology of entrepreneurship has obviously focused on the entrepreneur rather than on entrepreneurship. Beyond doubt, venture creation is a personal act, a personal decision to pursue opportunities in an entrepreneurial manner and, as such, the entrepreneur is the main object of study within the entrepreneurial psychology. Entrepreneurial activities are related to the notion of “creative destruction” proposed by Schumpeter (1934); old ways of doing business are transformed by enterprising individuals who break changes in business systems, transmute the economy by setting new directions, suggesting new ways and coming role models.

At the risk of oversimplifying the great and vast contributions made from the psychological field it can be said that two schools of thought in this “supply side” have prevailed as the mainstreaming approaches toward entrepreneurship: the personality psychology and the cognitive science. As Schaper (2010) remarks an entrepreneur is easy to recognize and hard to define. The big five personality dimensions approach has tried to disentangle the entrepreneurial personality and describes those traits which incite behavior toward venture creation. Scholarly efforts have enlightened the role played by some personality traits as locus of control (Chen et al. 1998; Mueller and Thomas 2001), self-efficacy (Utsch et al. 1999; Luthans et al. 2000) risk taking propensity (Chell et al. 1991; Caliendo et al. 2010) need for achievement (Chell et al. 1991; Begley 1995) and need for autonomy (Carter et al. 2003; Bolino and Feldman 2000). The second main psychological studying field focuses on the cognitive processes underlying the entrepreneurial act,

in other words the cognitive scripts which underpin the processes of detecting and acting on opportunities (Mitchell et al. 2000). The antecedent of the cognitive theories on entrepreneurship is given by the theory of planned behavior proposed by Ajzen already in 1991. Ajzen (1991) offers a theoretical framework which has served as starting point to more elaborated theories about the nature and development of cognitive entrepreneurial scripts (Allinson et al. 2000; Krueger 2003; Baron and Ensley 2006; Baum et al. 2007; Frese 2009; Krueger and Day 2010; Sánchez et al. 2011). The Ajzen theory (1991) proposes that entrepreneurial intention is a determinant for the entrepreneurial act. This widely accepted model suggests that personal attitudes toward venture creation, subjective norms and perceived behavioral control (self-efficacy) will shape the entrepreneurial intention and consequently the entrepreneurial behavior.

The model, although old, hasn't lost in validity and actually offers a construct to bridge the supply and the demand perspective exposed above. As Bandura (1986) already noted, theories of entrepreneurship that have focused on one-sided determinism, where either environmental or personality variables as unique predictors of entrepreneurship, have failed to capture the complexity of human action that encompasses the interaction of environmental, cognitive, and behavioral variables (Bandura 1986). Even in the model proposed already in the 1980s by Ajzen and Fishbein (1980), theory of reasoned action, binds the supply (attitudes toward entrepreneurship) and the demand side (subjective norms). The model became even more completed when Ajzen (1991) added the self-efficacy concept. The exposed ideas above give us already an impression of the multidimensional character of the entrepreneurial act. Subjective norms lead us to consider the social, contextual and cultural forces which influence the realization (or non-) of entrepreneurial outcomes. These outcomes occur as context-dependent, social and economic processes.

The cultural context in which the entrepreneurial activity takes course plays a significant role, a role, on the other hand, difficult to concretize. As Urban (2007) in his analysis of the entrepreneurial activity in South Africa rightly points out, not only the macroeconomic environment (per capita GDP) together with the immediate business environment affect the level of entrepreneurial activity in a country, there are other major factors, namely the culture and the national characteristics, which enhance or constrain the starting up activity in a given country or region. This "demand side" which is indispensable for understanding the nature and the entrepreneurial activity level in a socio economic region has been again explained from multiple perspectives. A large body of research lends support to the idea that cultural values influence the entrepreneurial activity. Studies in social anthropology conducted, firstly, by Hofstede (1980, 1991, 2003) have suggested the role played by some cultural traits on work related attitudes, motivation and behavior as well as on entrepreneurship (McGrath et al. 1992; Hayton et al. 2002; Busenitz and Lau 1996; Mueller et al. 2002). The influence of certain cultural dimensions like risk propensity, individualism or uncertainty avoidance have been scrutinized in order to define their impact on entrepreneurship. When mentioning the efforts carried out to clarify the role of culture on entrepreneurship it is imperative to name

Trompenaars (1993), who has more recently proposed other kinds of dimensions which may amend and enrich the theory of Hofstede. Following the argumentation of Urban (2007), cultural values affect the cognitive *modus operandi* of individuals; the way we perceive opportunities and how we act, or not, on them is determined by our cognitive schemata and scripts which are generated within a cultural framework.

Additionally, Davidsson and Wiklund (1997) offer a plausible twofold explanation why some cultural areas show more propensity to venture creation than others; firstly, a supportive environment, a social legitimization toward entrepreneurship may foster entrepreneurial inclination; secondly, when societies dispose of successful entrepreneurial models the process of venture creation becomes reinforced and it creates a feedback dynamic which bolsters the legitimization of starting up activity.

The efforts to explain the entrepreneurial activity exposed in the previous paragraphs are just a small sample of the outlooks, theories and frameworks which try to elucidate the business venture creation process as well as the efforts which have been made to combine all of these contributions into a comprehensive and holistic model. Explaining entrepreneurial intention and act is per se a challenging mission, the task evolves even more multifaceted and complex when trying to capture the motivation and needs which lead entrepreneurs to opt for a specific entrepreneurial area, namely, ecopreneurship. In the next chapter an overview will be offered of the development of this concept and the forces which are increasingly pushing green entrepreneurship as an activity spreader, more accepted and embedded in our economies.

2 Socio Cultural Factors Influencing the Ecopreneurship Activity

The concepts of sustainability, sustainable entrepreneurship, circular economy and environmental entrepreneurship are gathering momentum in the global economy. In order to unify efforts toward more sustainable practices the United Nations established the World Commission of Environment and Development (WCED), often referred as the Brundtland Commission, with the purpose to achieve worldwide political consensus and to raise awareness of the importance of including sustainable development in economic and social policies around the world (Goodlands 1995). The WCED in its definition unifies the concept of limits to growth with the idea of “needs” (critical needs of the world’s poor). When dealing with the sustainable economy construct three inherent components of it are meant: Environmental sustainability, economic sustainability and social sustainability. Although they may be considered as three different pillars of sustainable development they are intertwined and very often it is difficult to clearly differentiate between them; for example, environmental entrepreneurship in its broad sense

has an inherent social and economic component. Nevertheless, and for the purpose of clarity in this paper we will analyze the environmental issues obviating the social and economic character which it evidently entails. Additionally, we are aware that it is rather questionable if some environmental businesses are environmentally friendly in their manufacturing process and as no few critics point out the net environmental balance of green practices may result rather poorly. Since it is impossible to find out behind the data presented below the real contribution of green business to the environment, we want to give the benefit of doubt and presume the positive intention and effect on the environment of such entrepreneurial green practices.

2.1 Ecopreneurship: Literature Review

Throughout the later years of the twentieth century there was an increased awareness about the business opportunities offered by emerging alternative life style choices, new environmental legislation and the recognition of the competitive advantages provided by a green agenda; entrepreneurs realized the chance to explore new business opportunities with sustainability at its core (Holt 2010). The transition to a green economy is seen as a necessary step to meet challenges like the climate change, the scarcity of non-renewable resources and ultimately the global recent economic recession. Interest in the green entrepreneurship is not only reflected in the increasing literature which is emerging about the topic but in the proliferation of terms used to refer to this manifestation of sustainable entrepreneurship; in this work we will use terms like environmental entrepreneurship, green entrepreneurship, ecological entrepreneurship or ecopreneurship interchangeably and will consider as eco venturing start up strictly activities which address ecological issues both in the business output and in the business process.

One of the most commonly cited definitions of Ecopreneurship is offered by Isaak (2002, p. 82); he defines an Ecopreneur as “A person who seeks to transform a sector of the economy towards sustainability by starting up a business in that sector with a green design, with green processes and with a life-long commitment toward sustainability”. As it can be deduced from this definition Isaak (2002) postulates that Ecopreneurship ventures are conceived for a green purpose and as Linnanen (2002) notes that implies a *raison d’être* which goes beyond generating profit. With his definition Isaak has laid the foundations to distinguish between green business and eco-friendly business. Kirkwood and Walton (2010, p. 204) define Ecopreneurs as “Entrepreneurs who found new business based on the principle of sustainability—Ecopreneurs are those entrepreneurs who start for profit-business with strong underlying green values and who sell green products or services”. Not every definition of ecopreneurship coincides with the narrow scope postulated by the above quoted scholars, other authors are more lenient and consider green companies as well those which try to give their activities the “green touch” or who undertake a “greenwashing” of their procedures in order to improve their impact

on the environment although this effect may not be their main business goal. Among the less stringent definitions is the one given by the OECD (2011) which proposes that a green entrepreneurship can be either making its business green or simply entering a green business. In other words, green entrepreneurship could be defined in terms of the technology used for production in any sector of the economy, or in terms of the sectors firms are active in, in which case our attention is restricted to parts of the economy producing specific types of output. The former is sometimes referred to as a process approach in defining green business, while the latter as an output approach.

Along the same lines Volery (2002) affirms that there exist two types of Ecopreneurs: (1) environmental—conscious entrepreneurs, are individuals who develop any kind of innovation (product, service, process) that either reduces resource use and impacts or improves cost efficiencies while moving towards a zero waste target. (2) Green entrepreneurs, are those who are both aware of environmental issues and whose business venture is in the environmental marketplace. Such entrepreneurs pursue environmental-centered opportunities which show good profit prospects.

In terms of clarifying the approach given to our data research the working definition adopted in this analysis is based on the perspective luckily coined by Isaak as green-green businesses, that means companies which consciously create business with the goal of taking care of the environment as their core essence. In other words, we won't contemplate businesses which are using green technology in any sector of the economy, but we will deal with environmental sectors, therefore focusing on the output more than on the green process.

We recognize that by narrowing the focus of the analysis, as proposed in the Table 1, we are just telling part of the story of green entrepreneurship.

However, narrowing the concept is a step in order to delimit the scope of the study, an additional parameter to delineate is the complex dilemma how green sectors are defined. Eurostat (1999) proposed a definition of the environmental industry following the output approach: the environmental goods and services industry consists of activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems, this includes cleaner technologies, products and services that reduce environmental risk and minimize pollution and resource use. Eurostat uses as metadata the existing industry classification NACE (Nomenclature statistique des activités économiques dans la Communauté européenne) which has been revised to match the HS codes (Harmonized System Codes Commodity Classification).

According to Eurostat (1999) the sectors in Table 1 are the core industries on environment and we agree that non-core does not mean not important, but rather areas in which identification, measurement and agreement problems exist. Companies which declare environment as "primary" activity belong to the core sector, whereas firms in the non-core sectors could declare environment activities as primary, secondary or not declare it at all. EU Regulation No. 691/2011 (EU 2011) describes the environmental goods and services sector as the production

Table 1 Environmental sectors

Pollution management group

Production of equipment and specific material for:

- I. Air pollution control
- II. Waste management
- III. Solid waste management
- IV. Remediation and clean-up of soil and water
- V. Noise and vibration abatement
- VI. Environmental monitoring, analysis and assessment
- VII. Other

Provision of services for:

- I. Air pollution control
- II. Water management
- III. Solid waste management
- IV. Remediation and clean-up of soil and water
- V. Noise and vibration abatement
- VI. Environmental research and development
- VII. Environmental contracting and engineering
- VIII. Analytical services, data collection, analysis and assessment
- IX. Education training and information

Construction and installation for:

- I. Air pollution control
- II. Solid waste management
- III. Remediation and clean-up of soil and water
- IV. Environmental monitoring, analysis and assessment
- V. Other

Cleaner technologies and products group

Production of equipment, technology, specific material for:

- I. Cleaner /resource-efficient technologies and processes
- II. Cleaner/resource-efficient products

Resource management group

Production of equipment, technology, specific materials, services, construction and installation for:

- I. Indoor air pollution control
- II. Water supply
- III. Recycled materials
- IV. Renewable energy plant
- V. Heat 7 energy saving and management
- VI. Sustainable agriculture and fisheries
- VII. Sustainable forestry
- VIII. Natural risk management
- IX. Eco-tourism
- X. Others

Source: Eurostat (1999)

activities of a national economy that generate environmental products. As shown in Table 1 (environmental sectors), the environmental products are products that have been produced for the purpose of environmental protection and resource management.

Few industries are fully green (e.g. Nace rev. 2, E38 'Waste collection, treatment and disposal activities; materials recovery'), some industry produces environmental

goods, but is pollution and material intensive (e.g. manufacturing of wind turbines or photovoltaic panels); other industries have experienced radical changes and substantially reduced their environmental impacts even though they do not produce environmental products; should environmentally efficient entrepreneurs in these sectors be considered as green entrepreneurs? As already said, the definition of green entrepreneurship depends substantially on the way green sectors are defined (Marin et al. 2015).

2.2 Environmental Friendly Culture Indicators

Creed, attitudes and intentions toward entrepreneurship are intrinsically given in the socialization process and therefore are influenced by the socio-cultural environment. If upon this statement we consider that cognitive scripts and schemata are as well developed in a cultural context it does not seem banal to draw attention to the cultural factors which may generate a breeding ground for entrepreneurship and, more concretely, for environmental entrepreneurship.

The most common used methodology applied to explore the role of culture in entrepreneurship is the measurement of typical traits which indicate the degree of enabling environment toward venture creation. A waste body of research has been devoted to define the role played by culture determinants, such as risk propensity, entrepreneurial education, preference for self-employment etc. in starting up activity. In this paper we propose to do an exercise of deduction, of reverse engineering, and to pay attention to some environmental activities which will lead us to infer to what extent culture promotes ecological business creation.

The OECD (2011) offers a model in which the determinants for entrepreneurship are listed, one of the six proposed determinants is the respective culture (see Fig. 1):

By the activities output selection we have opted for easily measured indicators which in our opinion reflect reliably the degree of deep-seated environmental awareness in a society. The selected indicators, as exposed in Fig. 2, are: environmental legislation, non-governmental ecological initiatives, sustainable cities and environmental education. These four indicators capture accurately the importance given by a cultural region to environmental concerns.

Firstly, legislation supporting and facilitating environment protection evidences an embedded ecological mindset. Non-governmental ecological initiatives appear to us a genuine example of the degree of environmental consciousness. These initiatives aren't steered by formal regulations and therefore manifest in an informal and easy way the awareness level of a society toward the environment. As a further indicator we have defined the efforts made by some cities in order to achieve a sustainable status. At this level, diverse ecofriendly factors like pollution, water, waste management, just to mention a few, converge. Hence sustainable cities mirror in a truthfully way the zeitgeist, mentality, priorities and concerns of a society. As final and due to the deep conviction of the authors we propose environmental education. Educational programs reveal the values and priorities of a society and,

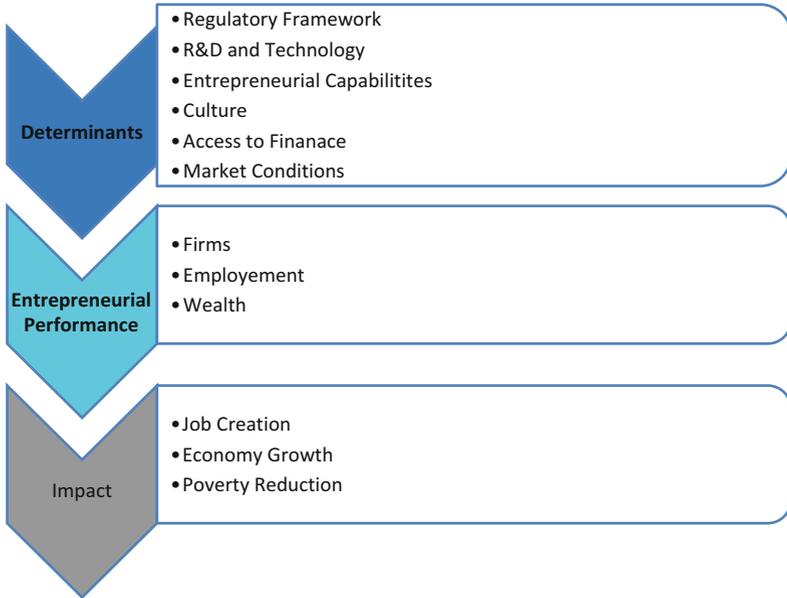


Fig. 1 Framework for entrepreneurship indicators. Source: OECD (2011)



Fig. 2 Friendly environmental culture indicators

what it is maybe more relevant they influence the values and priorities of the next working generation; therefore, it is, from our point of view, a meaningful factor of the culture landscape. The analysis of the performance of these four indicators can significantly contribute to understand the cultural climate toward environmental matters in a society.

3 Environmental Culture and Ecopreneurship Activity: An Analysis of Three European Regions

In order to be able to compare the performance of the three countries object of study, globally recognized indexes and rankings are taken into consideration. Even if rankings may be questionable, what they guarantee us the application of standards which makes them comparable.

Concerning environmental legislation, we took the environmental performance index conducted for the Yale Center for Environmental Law and Policy by Hsu (2016) as a viable orientation to comprehend it; this index ranks the performance of countries on high-priority environmental issues in two broad policy areas: protection of human health from environmental harm and protection of ecosystems (Àcs et al. 2016); the positive relationship between environmental performance and entrepreneurship in general is the strongest of all the relations examined in the report done by the authors. It cannot be concluded that entrepreneurship directly influences environmental performance, or vice versa, but both illustrate an outcome of good governance practices; as it can be observed in Table 2 the three countries are performing worldwide outstanding being Spain the country performing higher.

For the analysis of non-governmental initiatives the amount of NGO's environmental initiatives conducted in every country under LIFE+ was considered. LIFE+ is an EU operating grants program for environmental and/or climate projects. It was launched in 1992, Table 3 shows the amount of projects which have been co-financed in each country from its creation to 2016.

Admittedly, the number of projects as an indicator must be taken with caution since many other factors may be playing a role as well. Firstly, Spain is a country with a considerable greater population than Portugal and Austria, therefore it is expectable it applies for more projects. Secondly, Portugal and Spain have been experiencing tough economic times, and this fact may have pushed non-governmental organizations to look for co-financing outside national borders while in Austria co-funding may have occurred at national level. For the third

Table 2 Environmental performance index

Country	Position worldwide 2016
Austria	18th
Portugal	7th
Spain	6th

Source: Hsu (2016)

Table 3 LIFE+ amount of projects

Country	LIFE+ Projects 1992–2016
Austria	100
Portugal	153
Spain	699

Source: European Commission (2016)

Table 4 Sustainable cities
(sub index planet)

Country (City)	Position worldwide 2016
Austria (Vienna)	4th
Portugal (Lisbon)	43rd
Spain (Madrid and Barcelona)	11th and 23rd

Source: Arcadis (2016)

Table 5 Environmental
sciences proficiency in 2005

Country	OECD position
Austria	1st above OECD average
Portugal	9th below OECD average
Spain	1st below OECD average

Source: OECD (2006)

factor, sustainable cities, we have underpinned our study though the Arcadis Index Worldwide 2016 but concentrating just in the sub index planet (Table 4).

The last indicator, environmental education, is based on the PISA studies conducted worldwide by the OECD. Within the framework of the PISA survey the study “Green at fifteen? How 15 years-olds perform in environmental sciences” was carried out. Our assumption is that an environmentally competent generation will need to understand the science of the environment and have the interest and determination to address the problems that it raises. For the education system there is a wide scope to contribute to developing environmental competences and awareness in the youth. This study, as it can be observed in the Table 5, allows us to draw a rough picture of the relevance given to environmental education in the three countries.

Notwithstanding, in order to gain a more accurate picture of the importance given to environmental sciences education in a country and with the prospect of detecting tendencies and policies changes it is, surely significant, to observe the education trend overtime. As illustrated in Table 6 (OECD 2015), Portugal has highly improved the performance in sciences in general and in living systems in particular while Spain has lightly improved and Austria has showed a performance decrease. With the purpose of making Tables 5 and 6 comparable the Table 6 exhibits the 15-years old’s proficiency in science; furthermore, and trying to adjust better the analogy with the study conducted in 2005 it is showed as well the subscale in living systems, which in opinion of the authors reflects the best the environmental sciences results.

The four displayed factors allow us to understand the importance ascribed to environmental issues in the three countries. We can conclude that the examined countries manifest a distinct tendency to grant great relevance to ecological issues. Even though it is not irrefutable in every figure examined separately, it can be appreciated that the three countries show large concern and resources investment toward ecology; Portugal seems to have understood the vital importance of educating young people on sciences and particularly on ecological issues, Spain performs in every indicator remarkable well and Austria, which certainly can be

Table 6 Sciences and environmental sciences proficiency in 2015

Country	OECD position in sciences	OECD position in environmental sciences
Austria	7th below OECD average	2nd below OECD average
Portugal	2nd above OECD average	7th above average
Spain	7th above OECD average	2nd above average

Source: OECD (2015)

Table 7 Average growth in business birth rates versus in a selection of green sectors (2006–2011)

	Total industry (%)	Sewage and refuse disposal, sanitation and similar activities (ISIC 90) (%)	Collection, purification and distribution of water (ISIC 41) (%)
Austria	9.8	7.8	1.5
Portugal	12.39	11.36	3.1
Spain	11.7	11.8	3.8

Source: Eurostat (2016), Instituto Estadístico de Portugal (2016), Instituto Nacional de Estadística de España (2016) and Statistik Austria (2016)

considered as a pioneer in environmental matters, needs at present to stress the sciences environmental education importance. The underlying question is to what extent this evident concern, awareness, toward environmental aspects in the three screened countries is reflected in the level of eco entrepreneurship. The working hypothesis on which this article is based considers that a friendly culture toward environmental issues should promote the intention and action toward green entrepreneurship, and in doing so we could conclude that cultural determinants influence ecopreneurship initiatives.

Bearing in mind the data analyzed we can conclude that there are imperceptible differences in the cultural approach toward environmental issues between Austria, Spain and Portugal. However, the conducted data analysis about the growth in business birth rates versus in a selection of green sectors, illustrated in Table 7 doesn't allow us clearly to made the extrapolation that a more environmental conscious culture results in a higher level of eco entrepreneurship.

The total number of green enterprises in percentage of total number of enterprises in the economy is higher in Austria than in Spain or Portugal but these two countries are experiencing a rapid progress; the three countries show the same pattern of cultural influence on green entrepreneurship, the difference, however, lies in the pace; Austria began earlier to create green enterprises and therefore the share in the total economy is higher than in Spain and Portugal, although we can, on the other hand, detect a stronger nascence in green entrepreneurship in Portugal and Spain (in 2015 it was the fourth most successful country in the EU creating green jobs) which would confirm that they are developing under a similar pattern, only that Austria undertook this way earlier.

4 Conclusion

Due to all the exposed reasons, measuring green entrepreneurship is an arduous task per se even lacking common understanding what green entrepreneurship should be. Very limited availability of data (e.g. business entry/exit) for narrow sectors (e.g. 4-digit NACE) made it difficult to observe an evolution of the business sectors and it is very remarkable that green entrepreneurship data had more importance in previous studies conducted by the OECD and Eurostat 10 years ago than nowadays. Nonetheless, trying to find a link between culture manifestations toward environment and ecopreneurship appeared to us an innovative and very tempting way to approach the topic.

Other determinants play a crucial role in ecopreneurship and the three countries studied have developed differently and under different economic and social conditions. These facts make comprehension of the entrepreneurship evolution challenging and multidisciplinary. Sustainable entrepreneurship is the unique viable alternative to grow with responsibility, and following the European Commission the environmental economy employed in the European Union 4.2 persons while the car industry barely 2.4 million and the textile industry just 1.6 (European Commission 2011). We are not dealing anymore with a niche market where environmentalist, idealist and downshifters are trying to find their alternative way, The 'Environmental Goods and Services Sector' (EGSS) represents approximately 2% of total EU employment and it continues growing and generating green employment across Europe. Environmental entrepreneurship encompasses a significant economic sector in Europe and big efforts in form of program like Horizon 2020 are being conducted in order to position Europe as the worldwide leader in environmental venture creation. For all the mentioned arguments and facts we are certain that the study of culture, environmental attitude and green entrepreneurship has a fruitful and intensive future ahead.

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Building a Conceptual Model for Brand Meanings in Wearable Sports Technology

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Abstract The purpose of this study is to build a conceptual model for understanding brand meanings in wearable sports technology. Wearable sports technology is a complex concept, because it integrates characteristics of clothing related issues like aesthetics and comfort as well as properties of electronic devices such as usability. Due to the lack of previous literature within the field of wearable sports technology three domains of literature are combined in the conceptual model to gain deeper understanding of the phenomenon. These three domains include the field of sports brands, technology and fashion. The connection between the two central theoretical constructs of brand meanings and brand relationships is elaborated in the proposed conceptual model.

Keywords Brand meanings • Brand relationships • Wearable sports technology

1 Introduction

Wearable sports technology is a relatively new phenomenon and therefore, has not yet been extensively studied in the field of marketing research. However, as wearable sports technology has several advantages like exploiting personal data to support health and exercise related goals, it can be argued that there is a need to create a better understanding of wearable sports technology from the consumer point of view.

Brands enable consumers connect to the values and meanings the brand represents, thus enabling consumers to express themselves. In the contemporary consumer culture, consumption is considered as a significant source from which consumers discursively construct their identities. While brands are seen as symbols, which meanings are used to create, sustain and even change consumers' self-concepts, it is important for brand managers and researchers alike to understand these meanings (Escalas and Bettman 2005). In the context of wearable sports

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© Springer International Publishing AG 2018

M.H. Bilgin et al. (eds.), *Eurasian Business Perspectives*, Eurasian Studies in Business and Economics 8/1, https://doi.org/10.1007/978-3-319-67913-6_16

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technology brands, it is essential to gain understanding of these meanings as the field is emerging and becoming visible to the larger audience.

Brands can be self-expressive and important for consumers' identity projects, social categorization, personal style and self-definition (Ahuvia 2005; Escalas and Bettmann 2005; Hemetsberger et al. 2009; Thomson et al. 2005). Due to the multitude of roles a brand can have in consumer's life, this study concentrates on consumers' perceptions of wearable sports technology from the specific brand perspective. Prior research has been investigating technology brands from the perspective of buyer behaviour and decision making (Hamann et al. 2007), but only little research has been conducted from the brand meaning perspective.

The purpose of this study is to build a conceptual model for understanding brand meanings in wearable sports technology. Gaining understanding in brand meanings is essential for future brand development and marketing strategies within the emerging field of wearable sports technology. Due to the novelty of the wearable sports technology as a research topic, there is no specific previous conceptual model to base the study on. Therefore, the conceptual model for this study creatively combines different elements from the field of consumer behaviour and branding research.

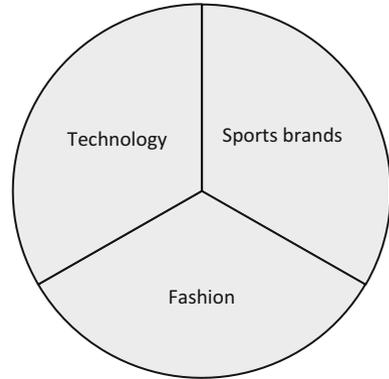
2 The Concept of Wearable Sports Technology

Wearable technology is still an emerging phenomenon especially from the perspective of consumer research. Empirical research on consumers' perceptions and attitudes toward wearable technology is insufficient as relevant studies are still in preliminary phases (Kim et al. 2015). Also, the context of health and sport related wearable technology has received only limited attention by consumer researchers.

Wearable technology is complex, because it integrates characteristics of clothing related issues like aesthetics and comfort as well as properties of electronic devices, such as usability. The complexity of wearable technology is only amplified, because it must consider collaboration between several stakeholders, such as end-users, electronic engineers, fashion designers and manufacturers (McCann 2009). In addition to combining technology and clothing related fields, wearable technology is in a close relation with the field of health and fitness (Gao et al. 2015). Due to this plethora of different fields, it appears that the context of wearable sports technology should be defined by three varying domains: sports brands, technology and fashion as illustrated in Fig. 1.

As there exists only limited research upon wearable sports technology, the required understanding of the phenomenon is created by examining relevant aspects from the three domains of sports brands, technology and fashion. Next, each domain is discussed individually from the point of view that is considered relevant for the wearable sports technology. This examination enables creation of brand meaning understanding within the context of wearable sports technology.

Fig. 1 Domains determining the context of wearable sports technology. Source: created by the authors



2.1 The Context of Sports Brands

Bouchet et al. (2013) suggest sports brands to be divided into four dimensions: functional, sensorial, semantic and somatic. Most of these four elements define brand dimensions also within other types of brands, such as luxury brands or technology brands. However, unlike with other brands, the dimensions for sports brands include the somatic dimension that describes the bodily features. In the case of sports brands, it is worth considering also the physical aspect and what it can bring to the brand experience as bodily experiences are an important part of doing sports and consuming sports brands.

The functional dimension refers to the actual utilitarian value and material benefits and is thus closely tied to the product attributes, such as usability, reliability and durability (Wiedmann et al. 2007). For example, the function of a sports watch might be letting the user to see some data about the exercise. Signal recognition, choice practicality and guarantee of quality are also considered as attributes relating to the functional dimension (Kapferer 2012).

The sensorial dimension refers to everything that can be experienced through consumers' senses: vision, hearing, smell, taste and touch (Bouchet et al. 2013). While describing the sensorial dimension, Bouchet et al. (2013) also talk about brands as experience producers. According to Brakus et al. (2009) a brand experience refers to subjective internal consumer responses and behavioural responses evoked by brand-related stimuli that are part of a brand's design and identity, packaging, communications and environments. It has been suggested that the importance of experiences is highlighted in leisure, entertainment and art-related products (Hirschman and Holbrook 1982), a domain where sports brands also belong to.

The semantic dimension refers to the symbolic function of brands, that is, the ability to carry meaning and values (Bouchet et al. 2013). According to Oswald (2012) brands are multidimensional sign systems that can be analysed in terms of material, conventional, contextual and performative structures. In order to be analysed, sign systems need to be available for senses, thus have a material

dimension. Secondly, in order to be understood, sign systems need to be codified by conventions that are shared by the members of social groups. Thirdly, sign systems create social discourses whose meanings are modified by the communication context. Finally, as the communication events engage both the marketer and consumer, it can be said that sign systems are performative (Oswald 2012). This way, brands act as symbols or metaphors for specific constructs or meanings. The semantic function of brands is actively developed and promoted by the marketers, but it is important to also note that sports themselves carry signs, meanings and associations (Bouchet et al. 2013).

The somatic dimension refers to bodily practises expressed and manifested through buying and consuming brands (Bouchet et al. 2013). This dimension is a key characteristic for sports brands, especially for those that promote exercise or some form of training. Sports brands typically use bodily actions like running or cycling in their promotional campaigns.

2.2 The Context of Technology

A major stream of research that studies consumer behaviour in the field of technology products focuses on technology adoption. It focuses on consumers' behavioural and cognitive motivations in the context of launching new technologies. The way individuals adopt and use new technologies is one of the most mature areas of information technology research (Venkatesh et al. 2012).

Research on technology adoption has found that the user has an increasingly important and interactive role when it comes to design, development and marketing of technology (Vannoy and Palvia 2010). From this perspective, mere acceptance of technology seems to be insufficient a perspective when it comes to understanding what motivates consumers to adopt new innovative technology. Therefore, studies that explore the mere acceptance of technology have gained criticism within the research field. The criticism has led to the emergence of social influence models of technology adoption.

2.3 The Context of Fashion

Trends are especially important when it comes to wearable products. According to Auty and Elliott (1998), clothing is an important field in encoding and decoding a range of messages. Clothing has been said to be the primary means of communicating the social identity as it tends to symbolize the social identity and the values of the related social group (Auty and Elliott 1998). However, the messages clothes or other wearable products and related brands communicate are not interpreted similarly among all consumers.

Fashion would not exist without the need for belonging to a community and on the other hand, the need to differentiate oneself from others. According to Han et al. (2010), consumers can manage this need by either favouring prominent or silent branding. In their study on different luxury consumers, they found that depending on the consumers' state of wealth and need for status, consumers would either favour prominent or more discrete visibility of the brand in order to either connect or differentiate themselves from a specific consumer group. The idea of connecting and differentiating from others is prominent especially among the luxury brand category. It also explains the dynamic lifecycle of fashion. It has been found that after the masses start to adopt the brands that the elite used to consume, the elite rejects those brands and seeks something new and unique. According to Danziger (2005) the natural evolution of all luxury concepts is to eventually transcend from the elite to the masses. Today, when the information about the lifestyles of the elite is more accessible to the masses, this happens faster than before.

3 The Definition and Role of Brand Meanings

Brands attach meanings to goods. This could be considered as one of the most important functions of branding. Through meanings marketers can differentiate otherwise similar products (Muniz 1997). The importance of meanings in branding is highlighted when we think about how the role of brands has evolved from simply having been a marker that identifies the producer of the product to the actual commodities that are nowadays consumed.

However, brand meaning is not yet clearly defined as it is still somewhat an emerging concept in the marketing literature (First 2009). Brand meaning has been linked to brand attributes (Davis 2007; Oakenfull et al. 2000), brand associations (Henderson et al. 2003) or brand personality (Escalas and Bettman 2005). Therefore, the nature and structure of brand meanings is discussed next in further detail.

3.1 The Structure of Brand Meanings

When considering the structure of brand meanings, it is useful to examine the differences between tangible properties, that can be perceived through senses and that can exist independently, and intangible properties, that exist only in the mind of the individual (Batey 2008). Tangible properties come from the object to the consumers' mind through perceived senses, whereas intangible properties originate from the consumers' mind and are projected onto the object (Batey 2008). Based on this remark, meanings of brands are combinations of tangible and intangible properties.

According to Batey (2008) four levels of brand meanings can be defined, reflecting the evolution from tangible, more objective perception, towards intangible properties that refer to more subjective perception. The way by which meanings are shared by a wider group of people is usually based on the objective and more tangible properties of the brand. When brand meanings are defined by a smaller group of people, like a specific culture or a sub culture, the intangible properties become more relevant. On the level of the individual consumer, brand meanings are subjectively constructed from the personal experiences with an object, resulting in personal meanings that vary strongly between individuals (Batey 2008).

The division of tangible and intangible properties of meanings is closely related to the concept of primary and implicit brand meaning. Primary brand meaning refers to the primary associations and perceptions that would immediately come to the consumer's mind about a certain brand (Chard 2013). Implicit brand meanings refer to the psychic resonance that the brand offers for consumers (Batey 2008). Implicit brand meanings tend to be more culturally influenced and less category dependent than primary brand meanings (Batey 2008). Implicit brand meanings therefore resonate with higher-level values or archetypal patterns of the consumer and are thus important to be clearly understood by the marketer, as they reveal deeper motivations of consumers (Chard 2013).

3.2 *Creation of Brand Meanings*

Traditionally, it has been thought that advertising agencies and brand managers are the creators of brand meanings. The role of the consumer has been seen mainly as the receiver and acceptor of that communicated meanings. Now, however, it has become clear that brand meaning is not solely constructed in advertising or other media of promotion, but rather in consumers' minds (First 2009). In addition, the creation of brand meanings should not be thought to be something that concerns only the brand and the consumer, since this perspective would neglect the role of the meaning makers, leaving out the influence many other parties, institutions and publics may have in developing, sustaining and changing brand meanings (McInnis et al. 2014).

To include the multitude of factors influencing the creation of brand meanings, Ligas and Cotte (1999) suggest that brand meanings are co-created through three environments: the marketing environment, the social environment and the individual environment, as illustrated in Fig. 2.

In line with Ligas and Cotte (1999) it is suggested that brand meanings are negotiated by interaction between these three environments. Thus, meanings that are developed in one environment may or may not influence the meanings created in another environment. Each environment contributes to the uniform way consumers interact with a branded product (Ligas and Cotte 1999).

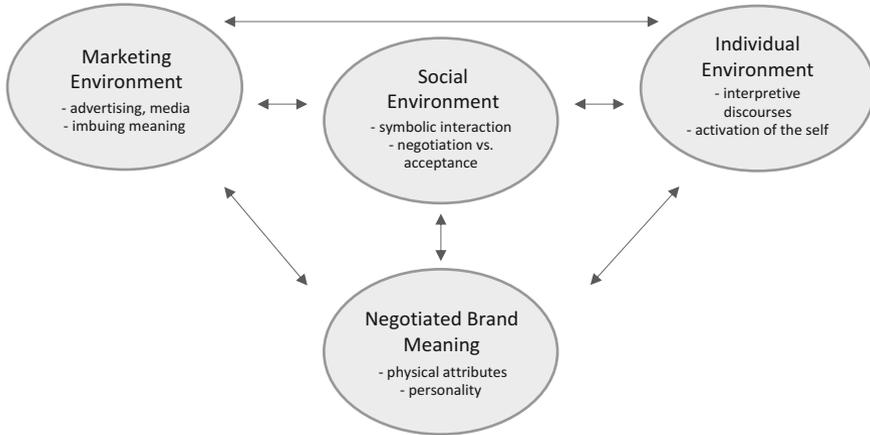


Fig. 2 Theoretical model of co-creative brand meaning development. Source: modified from Ligas and Cotte (1999)

4 Brand Relationships and Their Facets

Whether research in branding focuses on brand attachment (Thomson et al. 2005), brand love (Ahuvia 2005) or brand devotion (Pichler and Hemetsberger 2008) what is common for these discussions is that brand relationships are important to consumers' identity projects, personal style, social categorization and self-definition (Reimann and Aron 2015). Consumers bond with specific brands and form brand relationships that have been argued to resemble interpersonal relationships (Hwang and Kandampully 2012), since also brand relationships are characterised by emotional connection (Morgan-Thomas and Veloutsou 2013).

Brand relationships are complex and can take many forms. They might take positive, neutral or negative forms and be characterized as emotional, functional, deep, superficial or cooperative (McInnis et al. 2014). Brand relationships can take forms of casual acquaintances, business partners, teammates, flings, best friends or marriage partners (McInnis et al. 2014). However, critical perspectives towards these decoded archetypal relationship types have been introduced. For example Fournier et al. (2015) propose that even skilfully decoded types of brand relationships are not sufficient for generalizations, but rather create a limited depiction of the relationship consumers create with brands.

Brand relationships can be viewed through varying dimensional qualities. Fournier (1998) mentions six facets that qualify brand relationships: love/passion, interdependence, intimacy, self-connection, partner quality and commitment. Also nostalgic attachment (Solomon et al. 2012) has been examined as an important facet of brand relationship quality. Brand relationships that are determined by these facets are found to be more strong and deep in nature (Fournier 1998, 2015; Reimann and Aron 2015).

5 Synthesis of the Conceptual Model

The conceptual model of this study brings together three different streams of literature, the context of wearable sports technology, the conceptualization of brand meanings and brand relationships. The synthesis of the conceptual model is based on the interaction between these domains as illustrated in Fig. 3.

As the phenomenon under study is relatively new especially from the consumer perspective, limited previous literature was available to create understanding of the context of wearable sports technology. Therefore, theoretical perspectives from three suggestive fields were combined in order to gain a referential understanding of the context of wearable sports technology. The theoretical perspectives within each of the three fields were selected to the conceptual model based on the relevance they could offer from the viewpoint of wearable sports technology.

It has been acknowledged that consumption practises and leisure activities such as doing sports, is a common way for consumers to express and build identity (Schwarzenberger and Hyde 2013). Similarly like other types of brands, also sports brands are an important instrument in this process. Bouchet et al. (2013) suggest sports brands to be divided into four dimensions: functional, sensorial, semantic and somatic dimension.

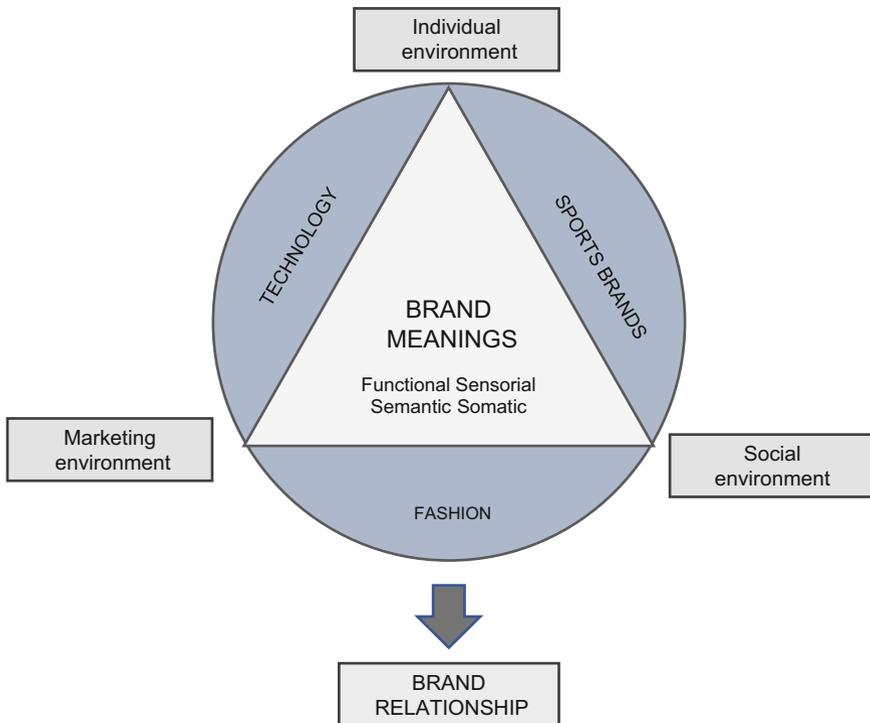


Fig. 3 The synthesis of the conceptual model. Source: created by the authors

In the field of technology, current research has found several relevant constructs that affect consumers' adoption of new technologies: performance expectancy, effort expectancy, social influence, facilitating conditions (Venkatesh et al. 2003) hedonic motivation, price value, habit (Venkatesh et al. 2012) perceived innovativeness and perceived fashionability (Watchravesringkan et al. 2010). Some of these might give valuable insight for understanding what consumers value in technology products and brands and therefore, guide the analysis of the meanings of wearable sports technology brands.

As wearable technology products are literally wearable, it is important to also consider the fashion aspect as it offers valuable insight for this study. Clothing is considered as the primary means of communicating the social identity as it reflects the values of the consumers, but also the related social group (Auty and Elliott 1998). Other important aspects from the field of fashion that were taken into account in this study are the influence of trends (Gaimster 2012) and luxury (Danziger 2005).

The main part of the conceptual model builds on the literature on brand meanings that are interactively created in three environments. These environments include the marketing environment, the individual environment and the social environment (Ligas and Cotte 1999). The marketing environment acts as the initiator of brand meaning, pursuing the creation of strong brand relationships (Malar et al. 2011). In the social environment, brand meaning is actively and continuously created and altered between different social entities, of which reference groups are important from an individual's perspective (English and Solomon 1995).

The concepts of brand meaning and brand relationships are connected as brand meanings partly determine the brand relationship.

6 Summary

The purpose of this study is to build a conceptual model for understanding brand meanings in the context of wearable sports technology. Gaining understanding in brand meanings is essential for future brand development and marketing strategies within the emerging field of wearable sports technology.

Wearable sports technology is a complex concept which integrates characteristics of clothing related issues like aesthetics and comfort as well as properties of electronic devices such as usability. The complexity of wearable sports technology is only amplified, because it considers the collaboration between several stakeholders, such as end-users, electronic engineers, fashion designers and manufacturers. In addition to combining technology and clothing related fields, wearable sports technology is in close relation with the field of health and fitness.

Recent technological advancements have enabled opening a new market for wearable sports technology brands. This means that wearable sports technology brands are now conquering the markets as they offer consumers obvious advantages such as support for sports tracking and health monitoring. As the concept of wearable sports technology is only emerging, marketers are facing challenges in

understanding how consumers perceive this new phenomenon. Although the wearable sports technology market is fast becoming an established consumer product category, little research has examined wearable sports technology from the consumer perspective.

Due to the lack of previous literature within the field of wearable sports technology three domains of literature are combined in the conceptual model to gain deeper understanding of the phenomenon. These three domains include the field of sports brands, technology and fashion. The three-dimensional process of brand meaning development is introduced and the three environments—the marketing environment, the individual environment and the social environment—are discussed further in detail. Finally, the connection between the two central theoretical constructs of brand meanings and brand relationships is elaborated in the proposed conceptual model.

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An Investigation of the Effect of Personal Values on the Students' Ethical Decision-Making Process

Zeynep Turk and Mutlu Yuksel Avcilar

Abstract Recently, a number of researchers have sought to determine variables that may affect the ethical decision-making process. One of these variables is personal values that are guidelines for doing the ethical behavior. Personal values play an important role in the ethical decision-making process. In this study, we examined the effects of business students' terminal and instrumental values on the ethical decision-making process. We considered ethical decision-making process as an ethical awareness, ethical orientation, and ethical intention. In order to measure ethical awareness, we tested whether a particular action was ethical/unethical based on ethical theories like justice, deontology, utilitarianism, relativism. Students' intentions to perform ethical behaviors were measured by the probability of doing questionable action. Therefore, the purpose of this research is to investigate the effects of personal values on the students' ethical decision-making criteria and intention to perform the ethical behavior. For this purpose, we used a self-administrated questionnaire method in order to collect data from business department students in Turkey. The 406 usable questionnaires were received from the voluntarily participated students in this research. During the analysis process, Partial Least Squares Path Modeling (PLS-PM) analysis method was used. The analysis results reveal that an instrumental value positively affects the students' ethical decision-making criteria. Particularly, utilitarianism, justice, and relativism dimensions have the strongest effect on students' intention to perform ethical behaviors.

Keywords Personal value • Ethical philosophies • Ethical decision making

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1 Introduction

During the last decade, enlarged emphasis on ethics by the community has caused increased researchers' interest in ethical decision-making area (Carlson et al. 2002). This interest has continued in business literature. There are numbers of models (Trevino 1986; Ferrell and Gresham 1985; Rest 1986; Jones 1991) that provide the theoretical framework for understanding ethical decision-making process in the literature. All of these models attempt to explain ethical decision-making processes from different perspectives.

In order to enhance ethical behavior, the factors that affect ethical decision-making must be understood as well as an understanding of ethical decision-making process. Personal value is one of the most studied factors that influence ethical decision-making in the literature. According to the literature, personal values are the determinant of behavior and having moral value means acting more ethically. The other factor that affects ethical decision-making is ethical philosophies. According to business ethics theorists, managers use ethical philosophies as a guideline when they make the ethical decision and see ethical philosophies as one of the most important factors that affect ethical judgment (Karande et al. 2002).

Business students are future professionals (e.g. accountant, marketer, manager etc.) of business areas in which ethical problems occur frequently. As a business professional, they will face ethical problems in their professional life. A better understanding of the personal value and ethical decision-making processes of business students can provide a better guidance for and enhance the ethical behavior of students' private and professional life. In order to better understand the role of personal value, in this study, we researched the effect of the personal value of business students on the ethical decision-making, and intention to perform ethical behaviors. We specifically, investigate the effect of personal value on ethical decision-making criteria (justice, deontology, utilitarianism, relativism) which are used in the ethical decision-making process.

In the next section, the literature relating to the important factors investigated is reviewed. Personal value, ethical decision-making models, and ethical philosophies are discussed along with the research model and research hypotheses. This is followed by a description of data collection and analysis method, results, and conclusions.

2 Personal Value

There are a number of definitions of value in the literature. The most popular definition of value used in the business literature is that "a value is an enduring belief that specific mode of conduct or end-state of existence is personally and socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach 1973, p. 5). Rokeach defined two types of values: terminal and

instrumental. Terminal values are “belief or conceptions about ultimate goals and desirable end-state of existence that are worth striving for” (e.g. world of peace, wisdom) whereas Instrumental values are “belief or conception about desirable modes of behavior that are instrumental to the attainment of desirable end-states” (e.g. love, honesty) (Rokeach 1979, p. 48).

Value is personally held and guidelines or permanent framework that influences and shapes the personal behavior (Oliver 1999; Windmiller et al. 1980; Finegan 1994; Fritzsche 1995; Akaah and Lund 1994). In other words, the value is determinants of attitudes and behaviors (Alteer et al. 2013). Thus, it can be said that if we can identify specific values that influence ethical behavior, we would have powerful tools for encouraging ethical behavior (Fritzsche 1995). In order to have powerful tools for value, educators and administrators should understand values, their influences, and the importance in business (Giacomino and Akers 1998).

There is a growing number of researchers that examined the relationship between personal values and ethical decision-making (e.g. Douglas et al. 2001; Finegan 1994; Akaah and Lund 1994; Fritzsche 1995; Shafer et al. 2001; Karacaer et al. 2009). Some of these found some degree of positive relationship between personal values and ethical decision-making. In this study, we investigate the effect of personal value on the business students' ethical decision-making process.

3 Ethical Decision Making Models and Ethical Philosophies

Before explaining ethical decision-making models in the literature, we should define ethical decision-making. Ethical decision-making is “the process of identifying a problem, generating alternatives, choosing among them so that alternative selected to maximizes the most important ethical values while also achieving the intended goals” (Guy 1990, p. 39). In another definition, ethical decision-making is “the process by which individuals use their moral base to determine whether a certain issue is right or wrong” (Carlson et al. 2002, pp. 16–17). The most common expression of ethical decision-making is “decision making in situations where ethical conflicts are present” (Cohen et al. 2001, p. 321).

In order to provide a framework for ethical decision-making, theoretical ethical decision-making models are developed in the business literature. The contingency model of ethical decision-making suggests that multifaceted factors affect ethical decision-making. These factors are individual factors (knowledge, values, attitudes, and intentions) and organizational factors (significant others and opportunity) (Ferrell and Gresham 1985). An interactionist ethical decision-making model developed by Trevino (1986) explains ethical decision making by an interaction of individual (moral development) and situational (organizational culture, work characteristics) components. Hunt and Vitell (1986) developed the positive theory of marketing ethics by including moral philosophies deontological and teleological norms used in ethical decision-making (Hunt and Vitell 1986, 2006).

The other model is Rest's (1986) ethical decision model that suggested four sequential stages that person must go through in ethical decision-making process. These stages are ethical awareness (recognitions of ethical problems), ethical orientation (ethical judgment or reasoning), ethical intention and ethical behavior. Ethical awareness is the first stage of the model and means the ability of an individual to recognize the ethical problems or issues in the situation. In order to behave morally, an individual must be aware of the ethical problem in the situations (Sweeney and Costella 2009). The second stage of the model is ethical orientation. In this stage, an individual tries to determine which alternative courses of action are ethically right or wrong. At the ethical intention stage, an individual decides to whether behaving in ethical or unethical manner. At the last stage of the model called ethical behavior, an individual behaves ethically or unethically. Jones (1991) added moral intensity construct to Rest's (1986) ethical decision-making model. Moral intensity has six components. These components are the magnitude of consequences, social consensus, temporal immediacy, proximity, probability of effect, and concentration of effect. According to Jones (1991), components of moral intensity affect each stage of Rest's (1986) ethical decision-making model.

Some of the theoretical ethical decision-making models (e.g., Hunt and Vitell 1986, 2006) saw moral philosophies (e.g. deontology, relativism) as a part of ethical decision process. Moreover, ethical philosophies are used as a guideline when individual/manager makes ethical decision (Singhapakdi 2004; Fritzsche 1991). Some of these philosophies are justice, deontology, utilitarianism, relativism. According to Cohen et al. (2001, p. 323), the justice ethical principle states that decision makers should focus on actions that are fair to all those involved and the deontology ethical theories state that people should follow to their unwritten obligations and duties when engaged in decision-making. Utilitarianism is to the extent to which an action leads to the greatest benefit for the greatest number of people (Forsyth 1992, p. 463). The relativism refers to the degree to which an individual rejects universal moral rules when making ethical judgment (Singhapakdi and Marta 2005).

In this study, we measured ethical awareness, ethical orientation and ethical intention of the business student as an ethical decision-making stages by using Multidimensional Ethics Scale (MES) (developed by Flory et al. 1992; Cohen et al. 2001). Moreover, in order to determine which ethical philosophies students use as a guideline in the ethical decision-making process, we asked questions about justice, deontology, utilitarianism, relativism in MES. The aim of this study, therefore, is to investigate the effect of personal values on the students' ethical decision-making criteria and intention to perform the ethical behavior. In this perspective, conceptual model and presumed relationships are presented in Fig. 1.

The research model shows the PLS-Path Model with seven latent variables presented by circles. Instrumental and terminal values are independent exogenous latent variables and justice, deontology, relativism, and utilitarianism are independent endogenous latent variables and behavioral intentions is a dependent endogenous latent construct in the research model. The relationships between the latent constructs are shown as single-headed arrows. Single-headed arrows show a

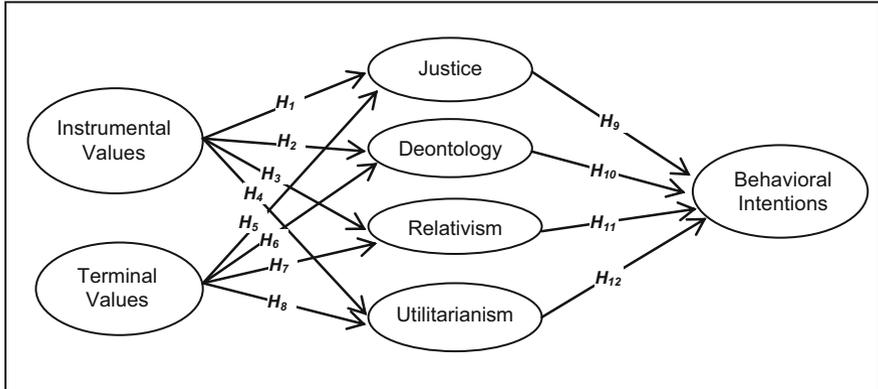


Fig. 1 Research model

predictive relationship between latent constructs. The hypotheses developed for this study in accordance with the related literature and research model are as follows:

- H₁₋₄**: Instrumental values positively affect students’ four ethical decision-making criteria.
- H₅₋₈**: Terminal values positively affect students’ four ethical decision-making criteria.
- H₉₋₁₂**: Students’ ethical decision-making criteria (i.e. justice, deontology, relativism, and utilitarianism) positively affect students’ intention to perform ethical behaviors.

4 Research Methodology

In the research process, convenience sampling method and a self-administrated questionnaire method were used in order to collect data from the one state university business department students in Turkey. The analysis was carried out by using Partial Least Squares technique. Statistical analysis was performed via SmartPLS 3.0 software (Ringle et al. 2015).

4.1 Sampling and Data Collection

In this study, we used convenience sampling and a self-administrated questionnaire as a data collection method. Students that enrolled in undergraduate level classes from Osmaniye Korkut Ata University Faculty of Economics and Business Administration Department of Business students were selected as the sample. Two experienced academicians collected the data at the end of spring semester classes in

2016. The 406 valid questionnaires were obtained from voluntarily participated students in this research. Among the survey respondents, nearly 57% were female, 43% were male. Survey respondents' age ranged from 18 to 25, and students' average age was 21 years old (Stdev. 1.607). In terms of the monthly average household income, most of the respondents (75%) stated that they had an average household income level between 3000 and 3999 Turkish Liras.

4.2 Measurement of Variables

This study examined the effects of personal values on the students' ethical decision-making criteria and intention to perform an ethical behavior. In order to measure students' values, 18 instrumental and 18 terminal values, we used Rokeach Value Survey (Rokeach 1973) that is well known and widely used in business literature. For this study, students were asked to rate each value on a five-point scale, anchored with the bipolar adjectives and ranging from one meaning (unimportant) to five (important). In this study, we measured ethical awareness, ethical orientation, and ethical intention of business student as an ethical decision-making stage by using ten items Multidimensional Ethics Scale (MES), which contains four ethical philosophies (e.g. justice, relativism, utilitarianism, and deontology) as an ethical decision making criteria developed by Flory et al. (1992) and Cohen et al. (2001). During the data collection process, we used six scenarios in MES, which contains changing level of unethical situations. Students' intention to perform ethical behavior was measured using two items developed by Randall and Fernandes (1991), Flory et al. (1992) and Cohen et al. (2001). The first item is "the probability that I would do the action is the low-high" and second item is "the probability that my peers and colleagues would do the action is the low-high". Two items are measured via a five-point Likert scale, ranging from five meaning (low) to one meaning (high).

4.3 Data Analysis

In this study, to test our research hypotheses Partial Least Squares Path Modeling (PLS-PM) analysis technique was used. PLS-PM is a variance-based structural equation modeling analysis method for testing theoretical relations between latent variables (Willaby et al. 2015). The variance-based PLS-PM algorithm was originally invented by Wold (1974, 1982) and subsequently developed by many researchers (e.g. Bentler and Huang 2014; Dijkstra 2014; Dijkstra and Henseler 2015). PLS-PM maximizes the dependent latent variables' explained variance by estimating partial model relationships in an iterative sequence of ordinary least squares regressions. In addition, PLS-PM emphasizes prediction while simultaneously relaxing the demands on data and specification of relationships (Hair et al.

2016). The estimation of PLS path model parameters is performed in four steps: first, an iterative algorithm that determines composite scores for each construct; second, a correction for attenuation for those constructs that are modeled as factors; third, parameter estimation; and finally, bootstrapping for inference testing (Henseler et al. 2016).

PLS-PM has some advantages over other SEM technique. For instance, PLS-PM analysis works efficiently with (a) complex theoretical models, (b) small sample size, (c) variable prediction goal, (d) both reflective and formative constructs are used, and finally, (e) non-normal data distributions (Willaby et al. 2015; Henseler et al. 2009; Chin 1998). Although many researchers mentioned some advantages of PLS-PM analysis method (e.g. Willaby et al. 2015; Reinartz et al. 2009; Esposito Vinzi et al. 2010; Henseler et al. 2009), in the literature, some researchers criticize the PLS-PM analysis method generally the four main directions. Firstly, PLS-PM produces biased parameter estimates. Secondly, PLS-PM offers no model overidentification tests. Thirdly, PLS-PM cannot correct for endogeneity problems in predictors, and finally, PLS-PM cannot accommodate measurement error (e.g. Rönkkö et al. 2015; McIntosh et al. 2014; Rönkkö and Evermann 2013). Having considered some advantages and disadvantages of PLS-PM method, the advantages of PLS-PM method outweighed the disadvantages. Therefore, PLS-PM analysis was used in order to test our research hypotheses. During the analyses process, we utilized SmartPLS 3 (Version 3.2.4) software (Ringle et al. 2015) to evaluate proposed research model.

5 Results

5.1 *Reflective Measurement Model Assessment*

PLS-PM is a composite-based analysis technique. According to Hair et al. (2016), PLS-PM consists of two elements. The first element is a structural model (also called the inner model in PLS-SEM) that displays the relationships between the constructs. The second element is the measurement models (also referred to as the outer models in PLS-SEM) that display the relationships between the constructs and the indicator variables. Henseler et al. (2009) state that PLS-PM analysis results should be evaluated in the two stages. In the first step, a measurement (outer) model result should be assessed and the next step, structural model results should be evaluated. In order to evaluate the psychometric properties of the reflective measurement model, we followed Hair et al. (2014) that suggested procedure in the analysis process. Ringle et al. (2010) indicated some evaluation criteria, for instance, outer loadings (>0.70), construct reliability (>0.60), AVE (>0.50), and indicator reliability (>0.50) must satisfy the minimum requirements for the reflective measurement model assessment.

As indicated in Table 1, all the outer loadings of the reflective constructs are statistically significant ($P < 0.001$) and well above the minimum threshold value of

Table 1 Descriptive statistics and correlations for latent variables

Scenarios	Latent variables	Mean	STDEV	Outer loadings (Min-Max) ^a	AVE	Cronbach's alpha	Composite reliability	TV	IV	J	R	D	U
New product lunch	Terminal Values (TV)	4.325	1.011	0.729–0.826	0.617	0.706	0.828	(0.785)					
	Instrumental Values (IV)	4.456	0.961	0.828–0.917	0.749	0.935	0.947	0.347	(0.866)				
	Justice (J)	3.518	1.481	0.838–0.963	0.849	0.912	0.944	0.230	0.223	(0.921)			
	Relativism (R)	3.635	1.365	0.932–0.971	0.906	0.948	0.967	0.234	0.252	0.705	(0.952)		
	Deontology (D)	3.348	1.382	0.901–0.931	0.839	0.810	0.913	0.175	0.211	0.775	0.712	(0.916)	
Foreign bribe	Utilitarianism (U)	3.548	1.398	0.951–0.962	0.915	0.907	0.955	0.198	0.189	0.745	0.754	0.762	(0.956)
	Terminal Values (TV)	4.316	1.019	0.769–0.942	0.711	0.958	0.880	(0.843)					
	Instrumental Values (IV)	4.449	0.871	0.841–0.938	0.826	0.814	0.966	0.373	(0.909)				
	Justice (J)	3.207	1.583	0.953–0.978	0.914	0.953	0.970	0.162	0.368	(0.956)			
	Relativism (R)	3.227	1.568	0.846–0.975	0.949	0.973	0.982	0.126	0.342	0.743	(0.974)		
Gifts for family	Deontology (D)	2.934	1.435	0.941–0.945	0.889	0.876	0.941	0.194	0.368	0.718	0.759	(0.943)	
	Utilitarianism (U)	3.085	1.548	0.972–0.978	0.961	0.960	0.980	0.142	0.397	0.769	0.780	0.775	(0.980)
	Terminal Values (TV)	4.320	1.013	0.812–0.922	0.827	0.958	0.966	(0.916)					
	Instrumental Values (IV)	4.461	0.747	0.718–0.882	0.695	0.814	0.871	0.353	(0.834)				
	Justice (J)	3.567	1.407	0.928–0.937	0.871	0.926	0.953	0.132	0.240	(0.933)			
	Relativism (R)	3.647	1.512	0.903–0.957	0.945	0.971	0.981	0.139	0.259	0.793	(0.972)		
	Deontology (D)	3.317	1.430	0.891–0.963	0.876	0.863	0.934	0.141	0.269	0.763	0.744	(0.936)	
	Utilitarianism (U)	3.430	1.542	0.969–0.975	0.956	0.954	0.977	0.132	0.278	0.636	0.670	0.772	(0.978)

Bad depth allowance	Terminal Values (TV)	4.310	1.022	0.808-0.895	0.834	0.960	0.968	(0.913)			
	Instrumental Values (IV)	4.471	0.863	0.885-0.904	0.816	0.776	0.899	0.338	(0.903)		
	Justice (J)	3.446	1.568	0.968-0.984	0.948	0.973	0.982	0.147	0.265	(0.974)	
	Relativism (R)	3.394	1.587	0.954-0.977	0.937	0.966	0.978	0.120	0.274	0.662	(0.968)
	Deontology (D)	3.428	1.592	0.947-0.980	0.957	0.955	0.978	0.116	0.257	0.690	0.844 (0.978)
Loan officer friend	Utilitarianism (U)	3.458	1.474	0.973-0.975	0.949	0.946	0.974	0.139	0.262	0.833	0.848 (0.974)
	Terminal Values (TV)	4.328	1.012	0.883-0.928	0.826	0.958	0.966	(0.864)			
	Instrumental Values (IV)	4.459	0.713	0.773-0.919	0.720	0.814	0.885	0.281	(0.785)		
	Justice (J)	3.962	1.292	0.747-0.976	0.799	0.883	0.921	0.122	0.135	(0.875)	
	Relativism (R)	4.002	1.159	0.894-0.954	0.847	0.910	0.943	0.150	0.124	0.689	(0.906)
Early ship-ment bonus	Deontology (D)	4.004	1.037	0.836-0.951	0.802	0.770	0.890	0.156	0.165	0.773	0.736 (0.872)
	Utilitarianism (U)	3.912	1.183	0.871-0.933	0.815	0.778	0.898	0.161	0.140	0.789	0.577 (0.898)
	Terminal Values (TV)	4.340	1.015	0.858-0.946	0.821	0.958	0.965	(0.906)			
	Instrumental Values (IV)	4.455	0.685	0.833-0.873	0.726	0.814	0.888	0.412	(0.852)		
	Justice (J)	4.049	1.284	0.980-0.982	0.963	0.961	0.981	0.152	0.258	(0.981)	
	Relativism (R)	4.147	1.114	0.918-0.932	0.856	0.832	0.922	0.157	0.263	0.638	(0.925)
	Deontology (D)	3.899	1.325	0.969-0.976	0.945	0.942	0.972	0.144	0.243	0.650	0.623 (0.972)
	Utilitarianism (U)	4.211	1.055	0.881-0.929	0.820	0.783	0.901	0.103	0.275	0.667	0.683 (0.905)

Values in parentheses (diagonal elements) are the square root of the AVE values. The off-diagonal values are the correlations between the latent constructs
^aReflective measurement model all factor loadings statistically significant (P < 0.001)

0.70. The outer loadings of all construct indicators are significant and exceed 0.708, representing an adequate within-method convergent validity. Moreover, the composite reliability indices of all the reflective constructs exceed 0.70, representing internal consistency reliability of the measures. Furthermore, the AVE values (convergent validity) are well above the minimum recommended level of 0.50; hence, demonstrating convergent validity for all constructs. The internal consistency measures of the Cronbach's alpha coefficients are well above the recommended level of 0.70. As shown in Table 1, PLS-PM analysis results indicate that all reflective constructs have high-level internal consistency reliability. In order to assess discriminant validity, the Fornell and Larcker (1981) criterion was used. The Fornell and Larcker criterion assumes that the square root of the AVE of each construct should be higher than the constructs' correlation in the model. As can be seen in Table 1, all the square roots of the AVE values are higher than the correlations of constructs in the research model. The analysis result supports reflective measurement constructs' discriminant validity. In general, the measurement method of research model could be deemed satisfactory for structural model assessment and hypothesis testing process.

5.2 *Structural Model Assessment*

Having confirmed the measurement model, as a reliable and valid, next step is to assess the relationships between latent variables. The evaluations of the structural research model build on the result of the standard model estimation, and the bootstrapping procedure (Hair et al. 2014). After performing the PLS-PM algorithm, the path coefficient estimates were obtained for the structural model relationships. The path coefficients statistical significance was estimated by means of bootstrapping routine (5000 subsample and 406 bootstrap cases). Table 2 shows the results of the structural relationship path coefficients, standard deviations for path coefficients, t-statistics values, P-values, and hypotheses test results.

As indicated in Table 2, six structural models were estimated for each of the six scenarios. PLS-PM analysis results indicate that instrumental value positively affects students' ethical decision-making criteria (e.g. justice, relativism, utilitarianism, and deontology) dimensions (except for the dimension of deontology in the first scenario) for the five of the six scenarios. Therefore, H1, H2, H3, and H4 research hypotheses are supported. Particularly, instrumental value has the highest level of influence on justice and relativism dimensions. Furthermore, PLS-PM analysis results reveal that terminal value positively affects students' ethical decision-making criteria (e.g. justice, relativism) dimensions (except for the dimension of relativism in the fourth scenario) for the five of the six scenarios. Thus, H5 and H7 research hypotheses are supported. On the other hand, terminal value positively affects deontology dimension for the only two (i.e. scenario 2 and 3) of the six scenarios tested. Therefore, H6 research hypothesis is not supported. In addition, terminal value positively affects utilitarianism dimension for the four

Table 2 PLS-PM structural model analysis results and hypotheses testing

Scenario 1: New product lunch	Path coefficient	STDEV	T -Statistics	Hypothesis	Test result
Instrumental values → Justice	0.174	0.080	2.170**	H ₁	Supported
Instrumental values → Relativism	0.167	0.077	2.169**	H ₂	Supported
Instrumental values → Deontology	0.078	0.055	1.415	H ₃	Not supported
Instrumental values → Utilitarianism	0.118	0.054	2.185**	H ₄	Supported
Terminal values → Justice	0.162	0.091	1.782*	H ₅	Supported
Terminal values → Relativism	0.194	0.085	2.268**	H ₆	Supported
Terminal values → Deontology	0.041	0.071	0.581	H ₇	Not supported
Terminal values → Utilitarianism	0.035	0.061	0.576	H ₈	Not supported
Justice → Behavioral intention	0.376	0.069	5.449***	H ₉	Supported
Relativism → Behavioral intention	0.398	0.053	7.509***	H ₁₀	Supported
Deontology → Behavioral intention	0.051	0.080	0.638	H ₁₁	Not supported
Utilitarianism → Behavioral intention	0.013	0.115	0.113	H ₁₂	Not supported
Scenario 2: Foreign bribe	Path coefficient	STDEV	T - Statistics	Hypothesis	Test result
Instrumental values → Justice	0.307	0.072	4.085***	H ₁	Supported
Instrumental values → Relativism	0.292	0.070	3.987***	H ₂	Supported
Instrumental values → Deontology	0.231	0.072	3.000***	H ₃	Supported
Instrumental values → Utilitarianism	0.284	0.074	3.692***	H ₄	Supported
Terminal values → Justice	0.193	0.046	4.159***	H ₅	Supported
Terminal values → Relativism	0.225	0.046	4.838***	H ₆	Supported
Terminal values → Deontology	0.140	0.047	2.949***	H ₇	Supported
Terminal values → Utilitarianism	0.192	0.048	3.945***	H ₈	Supported
Justice → Behavioral intention	0.130	0.156	0.831	H ₉	Not supported
Relativism → Behavioral intention	0.386	0.082	4.621***	H ₁₀	Supported
Deontology → Behavioral intention	0.089	0.199	0.444	H ₁₁	Not supported
Utilitarianism → Behavioral intention	0.273	0.132	2.079**	H ₁₂	Supported

(continued)

Table 2 (continued)

	Path coefficient	STDEV	T - Statistics	Hypothesis	Test result
Scenario 3: Gifts for family					
Instrumental values → Justice	0.233	0.074	2.978***	H ₁	Supported
Instrumental values → Relativism	0.237	0.073	3.246***	H ₂	Supported
Instrumental values → Deontology	0.219	0.075	2.921***	H ₃	Supported
Instrumental values → Utilitarianism	0.267	0.075	3.456***	H ₄	Supported
Terminal values → Justice	0.167	0.042	3.938***	H ₅	Supported
Terminal values → Relativism	0.183	0.040	4.566***	H ₆	Supported
Terminal values → Deontology	0.189	0.044	4.302***	H ₇	Supported
Terminal values → Utilitarianism	0.182	0.046	3.934***	H ₈	Supported
Justice → Behavioral intention	0.097	0.109	0.896	H ₉	Not supported
Relativism → Behavioral intention	0.308	0.094	3.282***	H ₁₀	Supported
Deontology → Behavioral intention	0.035	0.041	0.166	H ₁₁	Not supported
Utilitarianism → Behavioral intention	0.377	0.075	5.016***	H ₁₂	Supported
Scenario 4: Bad depth allowance					
Instrumental values → Justice	0.185	0.042	4.410***	H ₁	Supported
Instrumental values → Relativism	0.158	0.044	3.579***	H ₂	Supported
Instrumental values → Deontology	0.149	0.043	3.436***	H ₃	Supported
Instrumental values → Utilitarianism	0.147	0.045	3.278***	H ₄	Supported
Terminal values → Justice	0.177	0.099	1.782*	H ₅	Supported
Terminal values → Relativism	0.131	0.091	1.442	H ₆	Not supported
Terminal values → Deontology	0.141	0.096	1.464	H ₇	Not supported
Terminal values → Utilitarianism	0.180	0.096	1.873*	H ₈	Supported
Justice → Behavioral intention	0.549	0.175	3.138***	H ₉	Supported
Relativism → Behavioral intention	0.224	0.209	1.072	H ₁₀	Not supported
Deontology → Behavioral intention	0.176	0.122	1.450	H ₁₁	Not supported
Utilitarianism → Behavioral intention	0.448	0.138	3.252***	H ₁₂	Supported

(continued)

Table 2 (continued)

	Path coefficient	STDEV	T - Statistics	Hypothesis	Test result
Scenario 5: Loan officer friend					
Instrumental values → Justice	0.171	0.044	3.881***	H ₁	Supported
Instrumental values → Relativism	0.169	0.051	3.343***	H ₂	Supported
Instrumental values → Deontology	0.143	0.046	3.112***	H ₃	Supported
Instrumental values → Utilitarianism	0.149	0.043	3.445***	H ₄	Supported
Terminal values → Justice	0.139	0.063	2.187*	H ₅	Supported
Terminal values → Relativism	0.130	0.068	1.919*	H ₆	Supported
Terminal values → Deontology	0.108	0.066	1.618	H ₇	Not supported
Terminal values → Utilitarianism	0.124	0.064	1.952*	H ₈	Supported
Justice → Behavioral intention	0.303	0.086	3.516***	H ₉	Supported
Relativism → Behavioral intention	0.219	0.041	5.341***	H ₁₀	Supported
Deontology → Behavioral intention	0.052	0.128	0.410	H ₁₁	Not supported
Utilitarianism → Behavioral intention	0.238	0.064	3.718***	H ₁₂	Supported
Scenario 6: Early shipment bonus					
Instrumental values → Justice	0.269	0.049	5.490***	H ₁	Supported
Instrumental values → Relativism	0.211	0.041	5.146***	H ₂	Supported
Instrumental values → Deontology	0.247	0.071	3.479***	H ₃	Supported
Instrumental values → Utilitarianism	0.219	0.061	3.590***	H ₄	Supported
Terminal values → Justice	0.162	0.053	3.057***	H ₅	Supported
Terminal values → Relativism	0.148	0.078	1.897*	H ₆	Supported
Terminal values → Deontology	0.095	0.069	1.377	H ₇	Not supported
Terminal values → Utilitarianism	0.091	0.063	1.444	H ₈	Not supported
Justice → Behavioral intention	0.182	0.055	3.309***	H ₉	Supported
Relativism → Behavioral intention	0.089	0.149	0.597	H ₁₀	Not supported
Deontology → Behavioral intention	0.044	0.148	0.297	H ₁₁	Not supported
Utilitarianism → Behavioral intention	0.558	0.094	5.936***	H ₁₂	Supported

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$ (two tailed)

(i.e. scenario 2, 3, 4, and 5) of the six scenarios investigated. Hence, H8 research hypothesis is generally supported. In general, PLS-PM analysis results reveal that instrumental and terminal values are significant predictors of students’ ethical decision-making criteria: especially, justice, relativism, and utilitarianism dimensions.

Table 2 provides support for our hypotheses related to whether or not ethical decision-making criteria have an effect on students’ intention to perform ethical behaviors. As Table 2 shows, utilitarianism ethical decision-making criterion positivity affects students’ intention to perform ethical behaviors for the five of the six scenarios (i.e. scenario 2, 3, 4, 5, and 6). Therefore, H12 research hypothesis is supported. In addition, relativism positively affects students’ intention to perform ethical behaviors for the four of the six scenarios (i.e. scenario 1, 2, 3, and 5). Therefore, H11 research hypothesis is supported generally. Moreover, justice positively affects students’ intention to perform ethical behaviors for the four of the six scenarios (i.e. scenario 1, 4, 5, and 6). Therefore, H9 research hypothesis is supported generally. Unlike the other ethical decision-making criteria, deontology has not statistically significant influence on students’ intention to perform ethical behaviors for the all of the six scenarios. Thus, H10 research hypothesis is not supported. Overall, PLS-PM analysis results indicate that utilitarianism, relativism, and justice dimensions are significant predictors of students’ intention to perform ethical behaviors.

The coefficient of determination (R^2) value and the Stone-Geisser’s (Q^2) value are the commonly used measures of the structural model predictive accuracy and predictive relevance (Hair et al. 2016). The R^2 value represents the amount of explained variance of the endogenous constructs in the structural model. In order to assess structural models’ predictive accuracy, we examined the R^2 values of endogenous latent variables, which are shown in Table 3. The R^2 values

Table 3 Endogenous latent constructs’ predictive accuracy and relevance values

Endogenous latent constructs scenarios predictive accuracy (R^2)	New product lunch	Foreign bribe	Gifts for family	Bad depth allowance	Loan officer friend	Early shipment bonus
Justice	0.076	0.030	0.057	0.053	0.057	0.090
Relativism	0.088	0.043	0.063	0.036	0.053	0.072
Deontology	0.056	0.023	0.052	0.028	0.030	0.041
Utilitarianism	0.072	0.036	0.076	0.047	0.040	0.058
Behavioral intentions	0.462	0.225	0.340	0.608	0.350	0.450
Endogenous latent constructs predictive relevance (Q^2) effect size	New product lunch	Foreign bribe	Gifts for family	Bad depth allowance	Loan officer friend	Early shipment bonus
Justice	0.055	0.073	0.043	0.043	0.034	0.031
Relativism	0.072	0.078	0.045	0.028	0.028	0.022
Deontology	0.033	0.020	0.042	0.019	0.017	0.019
Utilitarianism	0.037	0.060	0.061	0.029	0.031	0.013
Behavioral intentions	0.441	0.211	0.224	0.594	0.244	0.243

endogenous latent constructs range from 0.023 (for the scenario 2 deontology dimension) to 0.608 (for the scenario 4 ethical behavior intentions dimension), which indicates structural model's predictive accuracy.

In order to evaluate the model's predictive relevance, the Stone-Geisser's (Q^2) values were also examined. The Q^2 value is an indicator of model's predictive relevance and Q^2 value bigger than zero for a certain reflective endogenous construct indicates the path model's predictive relevance for a particular construct (Hair et al. 2014). Table 3 also shows the Stone-Geisser's (Q^2) value of all endogenous constructs. During the blindfolding analysis procedure, we used cross-validated redundancy values for the model's predictive relevance, all the Q^2 values are above the zero (ranging from 0.013 for the scenario 6 utilitarianism dimension to 0.594 for the scenario 4 ethical behavior intentions dimension), which supports the model's predictive relevance for the endogenous construct.

6 Conclusions

This study examined the effects of personal values on the students' ethical decision-making criteria and intention to perform the ethical behavior. We found that instrumental value positively affects students' ethical decision-making criteria (e.g. justice, relativism, utilitarianism, and deontology) in five scenarios. In the first scenario, we found that instrumental value does not have significant effect on deontology. In addition, instrumental value has the highest level of influence on justice and relativism. Furthermore, we found that terminal value positively affects students' ethical decision-making criteria (justice, relativism) for the four of the six scenarios. On the other hand, terminal value positively affects deontology for the only two (i.e. scenario 2 and 3) of the six scenarios tested. In addition, terminal value positively affects utilitarianism for the four (i.e. scenario 2, 3, 4, and 5) of the six scenarios investigated. In general, we found that instrumental and terminal values are significant predictors of students' ethical decision-making process: particularly, justice, relativism, and utilitarianism. These results agree with the findings of previous research on the effects of personal values on ethical decision-making process (e.g., Ferrell and Gresham 1985; Finegan 1994; Fritzsche 1995; Akaah and Lund 1994; Douglas et al. 2001). Therefore, this study suggests that if the education program can improve the personal value (especially instrumental value) of the business students, the more ethical behavior can be expected from the students.

In addition, we found that utilitarianism positively affects students' intention to perform ethical behaviors for the five of the six scenarios (i.e. scenario 2, 3, 4, 5, and 6). In addition, relativism positively affects students' intention to perform ethical behaviors for the four of the six scenarios (i.e. scenario 1, 2, 3, and 5). Moreover, justice positively affects students' ethical behavior intentions for the four of the six scenarios (i.e. scenario 1, 4, 5, and 6). Unlike the other ethical decision-making criteria, deontology does not have a significant influence on students' intention to

perform ethical behaviors for the all of the six scenarios. Overall, we found that utilitarianism, relativism, and justice are significant predictors of students' intention to perform ethical behaviors. These findings are in line with the literature that indicated moral philosophies affect the ethical decision-making process. Particularly, Cohen et al. (2001) found that deontology and justice have the strongest effects while relativism has the weakest effects on the ethical decision-making process of business students and accounting professionals.

As a result, our study reveals that personal value affects ethical decision-making criteria and then these criteria affect ethical intentions. The findings of this study offer additional insight in the area of the students' ethical decision-making process. However, as with any survey research, this study has some limitations. The first limitation of this study is that we used a non-probability convenience sampling method. This sampling method restricted the generalizing of the study results to the population. Therefore, future research should use the probability sampling method and may retest the research model with the data from the MBA students and professionals. In addition, the further study should use other variables (e.g. age, gender, income, culture) that might affect ethical decision-making. In relation to these considerations, more research on this topic needs to be undertaken before the effects of personal values on ethical decision-making criteria and ethical behavioral intentions are more clearly understood.

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Part III
Human Resources and Education

Idiosyncratic Deals at Work: A Conceptual and Empirical Review

Severin Hornung

Abstract Idiosyncratic deals, or i-deals, describe non-standard work arrangements individual employees negotiate with employer agents (e.g., supervisors or managers) to obtain personally desirable resources or conditions (e.g., flexibility in scheduling work, special assignments, or training opportunities). Despite growing interest in the construct, its complete scope and conceptual underpinnings are hardly well understood. This contribution seeks to inform and advance research on this complex and still understudied workplace phenomenon in two ways. First, theoretical assumptions will be structured and clarified by contrasting disciplinary perspectives of Organizational Theory, Human Resource Management, Organizational Behavior, and Industrial Relations. Second, the assimilation of a meta-model of i-deals is reported, based on the combined results of a series of eight studies. The majority focused on flexibility and development i-deals. Antecedents included organizational (e.g., work structures), individual (e.g., personal initiative), and interpersonal (e.g., leader relationship) factors. Outcomes captured individual (e.g., reduced strain) and organizational benefits (e.g., task performance) and mediating processes (e.g., work characteristics). The proposed multi-disciplinary view and the compiled model are used to illustrate key aspects of a better understanding of i-deals, discuss constraints and limitations, and outline some implications for research and practice.

Keywords Employee-employer negotiation • Human resource management • Idiosyncratic deals • Individual bargaining • Organizational benefits • Research review

1 Introduction

Idiosyncratic deals, commonly referred to as i-deals, are an upcoming hot topic in organizational research (e.g., Bal et al. 2012; Gajendran et al. 2015; Vidyarthi et al. 2014; for an overview see: Liao et al. 2016). I-deals capture personalized and

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non-standard workplace arrangements that are negotiated between individual employees and agents of the employing organization, typically direct supervisors, human resource representatives, or higher-level managers. As elements of the informal organization, i-deals provide recipients with resources otherwise not available to them, such as extra flexibility in work hours, special job tasks, or personalized development opportunities (Rousseau 2001, 2005). Reflecting a paradigm shift in organizing, i-deals can be conceptualized as an “in-between” phenomenon, combining elements of top-down implemented management practices and bottom-up proactive employee behavior (Hornung et al. 2010b). Setting them apart from dysfunctional forms of organizational micro-politics or favoritism, i-deals are based on principles of procedural justice and promise advantages for both workers and organizations. These and other theoretical assumptions on i-deals will be reviewed in the first part of this contribution. After clarifying definitional features, prototypical topics of interests from different vantage points on i-deals are discussed. From the perspective of Organizational Theory (OT), i-deals are manifestations of a paradigm shift from classic industrial administration via human relations and sociotechnical systems towards flexible and individualized structures and practices. The Human Resource Management (HRM) perspective emphasizes that i-deals are authorized and functional, based on procedural justice, and combine features of top-down and bottom-up processes. The Organizational Behavior (OB) perspective distinguishes i-deals from related concepts, such as proactive behavior. More critical, the Industrial Relations (IR) perspective calls attention to the erosion of collective bargaining, employer divestment in benefits, and workplace inequality. The second part will provide a synthesis of eight empirical studies, the combined results of which are integrated into a meta-model of individualized employee-employer negotiation. The focus of the majority of studies was on flexibility and development i-deals. Antecedents included organizational (e.g., work structures), individual (e.g., personal initiative), and interpersonal (e.g., leader relationship) factors. Outcomes captured individual (e.g., reduced strain) and organizational benefits (e.g., task performance) and mediating processes (e.g., work characteristics). Based on the presented review, implications for research and practice are derived, methodological constraints are highlighted, and challenges of aggregating research results are discussed.

2 Conceptual Review

I-deals have been defined as “voluntary personalized agreements of non-standard nature negotiated between individual employees and their employer regarding terms that benefit each party” (Rousseau et al. 2006, p. 978). Explications of this definition have stressed key attributes, such as individual negotiation, mutual benefits, heterogeneous forms, and variation in scope. These aspects, however, are highly selective and do not capture the full breadth of the construct. Below, an expanded set of definitional features is suggested. Still more exemplary than

comprehensive, the following elements are characteristic for i-deals: (a) **Idiosyncrasy**: As person-specific conditions, i-deals differ from applicable standard HR practices and job features in similar positions; (b) **Voluntariness**: First, as voluntary agreements, mutual consent of employee and employer is assumed, nonetheless acknowledging imbalanced power-dependence relationships in employment; (c) **Negotiation**: I-deals are typically initiated proactively by employees and authorized by employer agents (e.g., supervisors or HR managers) after some kind of compromise, concession, or alignment of interests; (d) **Heterogeneity**: The contents of i-deals can involve all aspects of employment, such as work schedule, workload, job content, learning and training; (e) **Variability**: I-deals vary in their extent, such as the number of customized job features and the extent of deviations from applicable standards; (f) **Particularity**: Personal meaning and value of i-deals indicate particularity (e.g., personally interesting job content; work schedule suited to family situation); (g) **Uniqueness**: A related feature, uniqueness means that i-deals are limitedly applicable to universally valued and scarce resources (e.g., pay or promotions); (h) **Personalization**: Following from the last two aspects, i-deals are person-specific and not intended or suitable for increasing competition or creating tournament situations among employees; (i) **Individual benefits**: For employees, i-deals offer a way of modifying work and employment conditions to better fit personal needs, goals, and/or preferences; (j) **Organizational benefits**: Employers use i-deals to attract, retain, develop, and motivate qualified employees, to align HR practices with growing workforce diversity (e.g., gender, age, culture) and to increase HR responsiveness in competing on globalized labor markets; (k) **Procedural justice**: Adherence to procedural justice is an important prerequisite of functional i-deals; drawing on Organizational Justice Theory (Greenberg 1987), i-deals stress the social-psychological importance of procedural over distributive justice, i.e., of unbiased, consistent, transparent, understandable, and considered decision processes over the distribution of resources or rewards. Aligning i-deals with procedural justice lends legitimacy to reduced distributive justice (e.g., equal treatment), resulting from taking into account broader individual contributions and efforts, personal needs, and circumstances.

2.1 I-Deals from an Organizational Theory Perspective

Important milestones in the development of a distinct perspective on individualization and idiosyncrasy in organizations include the works of Miner (1987), Lawler and Finegold (2000), Feldman and Pentland (2003), Wrzesniewski and Dutton (2001), and Rousseau (2001, 2005). The fast reception and widespread uptake of i-deals (Liao et al. 2016) are embedded in broader developments in theorizing about organizations. Such trends can be analyzed as historical phases in the development of productive forces, surges of dominant ideological frameworks, or as paradigm changes (Barley and Kunda 1992). The classics of industrial administration and bureaucratic management have formulated concepts of organizations emphasizing

stable and formalized structures and rule-bound, standardized processes. For the sake of efficiency and effectiveness, structures and processes were geared towards equal treatment of constituents without regard of the individual person (Weber 1968). This principle of formalistic impersonality basically eliminated the living person from administrative theory, while at the same time promoting an abstract, mechanistic, and essentially technocratic view on organizations and organizing. This changed somewhat during the following institutional era under the influence of the new paradigm introduced by the human relations movement, socio-technical systems theory, and quality of working life initiatives (Barley and Kunda 1992). Based on the postulate that organizations need to be understood as social systems, the new paradigm stressed the emergent informal organization between working individuals, the importance of social phenomena and team processes, and the need to reconcile traditional management approaches with humanistic values (Roethlisberger and Dickson 1939). In this sense, human relations and socio-technical design have brought people back into theorizing on organizations. The following paradigm of individualization and idiosyncrasy went one step further, arguing that employees are not just passive job recipients, but also actively influence and shape organizational structures and working conditions through their own actions and interactions with others. The new paradigm emphasizes flexibility, improvisation, destandardization, and emergence, having discovered procedural justice as an important management principle. I-deals thus direct attention to complex and dynamic social inter-dependencies, such that the interaction between employees and their jobs is nested within employee-employer interactions of negotiating for person-specific job features.

2.2 I-Deals from a Human Resource Management Perspective

From the HRM perspective, it is of particular interest to locate i-deals in the broader context of organizational practices and phenomena (Lawler and Finegold 2000). Properties of a given job vary, not only between organizations, but also across job incumbents (Rousseau 2005). General features, based on formalized HR practices, are either standardized (e.g., benefits available to all employees) or position-based (e.g., status privileges for managers). Additionally, person-specific features can result from self-enacted or negotiated modifications (Wrzesniewski and Dutton 2001). The distribution of these layers of variability is influenced by numerous factors, such as labor laws, market standards, HR philosophy, job type, and actions of the job incumbent. The concept of i-deals is useful to explain the emergence of person-specific variability through individualized bargaining processes. HR practices and programs promoting individualization are typically initiated and implemented “top-down” by the employer; examples are part-time work, working time accounts, training budgets, individual goal setting, and cafeteria benefit plans.

At the other end of the spectrum are changes that are initiated and enacted “bottom-up” by employees through self-discretionary proactive and deviant behavior, where person-specific variability results from individual interpretations, use, and expansion or overstepping of one’s zone of autonomy; examples are differences in how job duties are performed, compliance with rules and regulations, use of working time arrangements, or involvement in training and learning. Combining characteristics of formal organizational and self-enacted individualization, i-deals are initiated bottom-up and authorized top-down (Hornung et al. 2010b). Representation of employee and employer interests implies that such arrangements are mutually beneficial. Authorization and functionality distinguish i-deals from related phenomena. I-deals are created through interpersonal negotiation with employer agents, entitled to authorize the resources bargained for. In contrast, behavioral concepts refer to autonomous or “self-discretionary” actions of employees. Functional proactive behavior (Parker and Collins 2010) may involve adopting a broader job role or engaging in active performance (e.g., making suggestions or implementing improvements). Dysfunctional counterproductive behavior or deviance (Marcus and Schuler 2004) may include withheld contributions, neglect of duties, or illegitimate appropriation of resources (e.g., personal activities during work hours, unexplained absence, or workplace theft). A common feature of i-deals and proactivity is that both contribute (overall and on aggregate) to organizational goals (e.g., productivity, innovation, and retention). I-deals are also distinct from organizational micro-politics, that is, dysfunctional authorized arrangements, such as favoritism, cronyism, or “old boy” networks (e.g., rewards based on personal relationship rather than contributions and needs). Whereas i-deals are based on procedural justice and mutual benefits, such illegitimate preferential treatment violates social fairness and is detrimental to broader organizational interests (e.g., grievances and cynicism). Functionality and authorization thus are interdependent. Authorization by agents acting in good faith on behalf of the employer and granting i-deals according to principles of procedural justice is critical to ensure advantages for both sides.

2.3 I-Deals from an Organizational Behavior Perspective

The perspectives of OB and HRM cannot be clearly separated. Topics such as the psychological employment relationship, leadership, work design, and proactive behavior are relevant to both fields. Nonetheless, emphasizing construct-based rather than conceptual similarities and distinctions, the following discussion corresponds more strongly with the OB point of view. Not coincidentally, i-deals share assumptions with Psychological Contract Theory (Rousseau 1995), such that the type of psychological contract and obtained i-deals are likely interdependent (e.g., transactional vs. relational) and the latter reflect “amendments” to the former (e.g., to compensate or remedy imbalances). Leader-Member Exchange Theory (LMX; Scandura and Graen 1984) has outlined how shared role definitions, differentiation

of status, and privileges among work group members are established through social exchange and negotiation with the leader. The concept of task redefinition in Job Characteristics Theory (Hackman and Oldham 1980) posits that work assignments are only incompletely specified (e.g., task goals and work approaches) and performance requires reinterpretation by the working individual. In Organizational Role Theory, similar notions have been developed in theorizing on job role differentiation (Ilgen and Hollenbeck 1991), framing work roles as emergent social constructs, subject to individual and collective redefinition and renegotiation with job constituents, such as customers, colleagues, or superiors. Early work on proactive socialization tactics (Ashford and Black 1996) has identified actions organizational newcomers engage in to learn how to enact their work role, including information seeking, relationship building, positive reframing, and negotiation of job responsibilities. The influential model of job crafting (Wrzesniewski and Dutton 2001) has provided a blueprint for discretionary, autonomous, or self-enacted modifications of task, relational, and/or cognitive job boundaries (e.g., adding or dropping tasks and collaboration interfaces). These constructs reflect proactive behavior (Parker and Collins 2010), an umbrella term for a broad range of intensively researched and increasingly differentiated constructs, all emphasizing the active role of individuals in shaping their work environments. For instance, personal initiative (Frese et al. 1997) operationalizes proactive behavior aimed at effecting positive changes as part of the self-starting, future-oriented, and persistent pursuit of personal and organizational goals. Personal initiative represents an individual orientation towards autonomy as well as an active performance concept—and has been considered both as an antecedent and an outcome of i-deals. Parker and Collins (2010) have introduced the broader category of proactive person-environment fit behavior for actions aimed at changing the work situation and/or oneself to improve fit with the job. The behavioral aspects of initiation and negotiation of i-deals correspond with this conceptualization.

2.4 I-Deals from an Industrial Relations Perspective

The IR perspective is probably the most critical of i-deals. Although the alignment of working conditions and employee preferences is a topic of genuine disciplinary interest, IR scholars and practitioners traditionally put their main focus on collective rather than individual approaches (Hornung et al. 2010a). Accordingly, from this point of view, there is a strong risk that i-deals may aggravate existing inequalities and differences in status and power, for instance between core employees and peripheral workers (e.g., Cappelli and Neumark 2004). This concern is connected to the suspicion that employers may abuse i-deals as a cost-efficient way for a case-by-case upgrading of “no frills” work contracts, which otherwise have been stripped of traditional employee benefits (e.g., Kalleberg 2003). Background for this critical assessment of i-deals is trajectories in contemporary employment relationships, which have been

described as a systematic shift in risks and responsibilities from employers to the individual employees (Rousseau 2006). The IR perspective differs from the previously reviewed disciplinary views as it evaluates i-deals more strongly in the broader context of labor economics and employment politics, such as the ongoing erosion of labor laws and collective bargaining systems, recurring rounds of slashing employee benefits, mass layoffs, and rising workplace inequality, giving rise to new forms of precarious employment, widespread insecurity, and marginalization of whole labor market segments (Allan et al. 1999; Kalleberg 2003; Turner and Auer 1994). In short, i-deals may be seen as part of the neoliberal rollback of employee rights and employer responsibilities (e.g., Rust 1999). Although theorizing has taken great care to clarify that functional and fair i-deals are distinct from employment politics and labor utilization strategies, in practice the boundaries are likely to be more blurry. Thus, it would be inappropriate or at least premature to dismiss the justified concerns that the IR perspective raises; rather, it seems more promising to gather evidence on the boundary conditions that permit positive uses of i-deals to counter the suspicion that such arrangements are necessarily part of a domination strategy by employers. Essentially, this is what the empirical studies reviewed in the following, have sought to provide. Nonetheless, the IR perspective cautions researchers to continue to pay attention to the possible “dark sides” of i-deals under the real-world conditions of imbalanced power-dependence relations.

3 Empirical Review

The second contribution this study seeks to make is the assimilation of a meta-model of antecedents and outcomes of i-deals, based on the combined results of eight empirical studies conducted between 2009 and 2015. Synthesizing results served evaluation purposes within the larger research program on employee-oriented perspectives on workplace flexibility the reviewed studies were embedded in. In a first step, structured summaries were created for all studies following a standardized format. Summaries contained condensed information on samples, control variables, antecedents, dimensions of i-deals, mediating constructs, outcomes, and main results as well as their interpretation. Relevant facts and parameters were extracted, categorized, and organized in a conceptual meta-model of individualized employee-employer negotiations. Antecedents referred to individual (e.g., employee initiative), organizational (e.g., work structures), and interpersonal (e.g., leader relationship) factors. Outcomes were grouped into benefits for the individual (e.g., reduced work-family conflict), benefits for the organization (e.g., task performance), and mediating processes (e.g., work design). The quality of evidence was evaluated according to methodological considerations (e.g., singular versus replicated results). Details on study contents, methods, and results are provided in the following.

3.1 *Study Contents*

A common denominator of all studies was a focus on antecedents and/or outcomes of one or more dimensions of i-deals at the individual level. Aside from this and other shared methodological and design features, studies also displayed a considerable range and heterogeneity in their theoretical framing and sets of empirical constructs. A list of the variables included in each study is provided in Table 1. Study aims and contents can be briefly summarized as follows:

- Study 1 (Rousseau et al. 2009) tested propositions on interdependencies between negotiation timing and content as well as on the differential effects of these dimensions on employee perceptions of social and economic exchange with the organization.
- Study 2 (Hornung et al. 2008) examined a range of organizational and individual antecedents (e.g., work structures and employee initiative) and outcomes of i-deals (e.g., affective commitment and work-family conflict) in the context of a telecommuting program in a public administration.
- Study 3 (Hornung et al. 2009) tested a comparable model of antecedents and outcomes from the managerial perspective of supervisors authorizing their employees' i-deals.
- Study 4 (Hornung et al. 2010b) introduced the construct into the work design literature, reporting the development and test of a model of i-deals, work characteristics, and indicators of well-being and performance.
- Study 5 (Hornung et al. 2010a) confirmed job autonomy and distributive justice as mediators between the successful negotiation of ex post i-deals and general job satisfaction.
- Study 6 (Hornung et al. 2011) strengthened the links between i-deals and leadership research by establishing associations between employee-oriented leader behavior of individual consideration, i-deals, and indicators of work-life quality among hospital physicians.
- Study 7 (Hornung et al. 2014) provided support for a more differentiated assessment of i-deals and an extended model of work re-design as job re-negotiation, including specific outcomes and intermediate processes connected to different types of i-deals.
- Study 8 (Tang and Hornung 2015) integrated previous themes and unresolved issues in developing a model of employee initiative, i-deals, extrinsic and intrinsic motivation, and positive spill-over between work and family domain.

3.2 *Research Designs*

All studies were based on survey research. The design involved cross-sectional data from employees in a work organization, occupational group, or otherwise specified population. Some studies also used a broader range of methods. Aside from quantitative results, Study 1 reports qualitative interviews, conducted to explore

Table 1 Summary of study variables

#	Controls	Antecedents	I-deals	Mediators	Outcomes
1	Gender Age Tenure edu- cation Part-Time	–	Ex ante Ex post Work hours Development	–	Social exchange Economic exchange
2	Gender Age	Personal Initiative Telecommuting Fieldwork Part-time	Flexibility Development	–	Work-Family conflict Affective commit- ment Voluntary overtime Performance standards
3	Gender Age Tenure	Employee ini- tiative Employer obli- gations Unit size Fieldwork	Flexibility Development Workload reduction	–	Employee Work-Life balance Employee motivation Performance standards
4	Gender Age Job level Part-time	LMX	Task	Job control Job complexity Work stressors	Personal initiative Work engagement
5	Gender Age Tenure edu- cation Part-Time	–	Ex post	Job autonomy Distributive justice	Job satisfaction
6	Gender Age Tenure edu- cation Part-Time	Leader consideration	Flexibility Development	–	Work engagement Work-Family conflict
7	Gender Age Tenure edu- cation Part-Time Temporary contract	LMX	Flexibility Task Career	Job autonomy Skill acquisition Work overload	Job performance Occupational Self-efficacy Emotional and cogni- tive Irritation
8	Gender Age Family situation	Personal initia- tive Family-Work enrichment	Flexibility Development	Intrinsic moti- vation Extrinsic motivation	Work-Family enrichment Work engagement

the phenomenon and to develop survey measures of i-deals. In addition to cross-sectional findings, Studies 5, and 6 included time-lagged relationships in smaller longitudinal data sets. Incorporating an additional and likely more objective and valid data source, Study 7 used supervisor ratings of job performance. Studies 2, 3,

4, and 8, all add unique features. Studies 2 and 3 provide different perspectives, examining similar relationships among employees and supervisors. Study 4 included a validation of the proposed model in two culturally and occupationally distinct samples. Study 8 transferred the construct into a new cultural and social context.

3.3 *Settings and Samples*

Data were gathered mostly in Germany (GER), but also the United States (USA), and China (PRC). An emphasis was on hospitals and health care workers. Out of the eight studies, six used original data sets, obtained in five distinct organizational, occupational and/or cultural settings. Study 1 drew on a sample of $N = 265$ hospital employees (USA), including staff from all areas (e.g., nursing, engineering, security, kitchen, etc.) of a mid-size general hospital; the sample was a composite of two cross-sectional survey waves with repeat responders removed. Study 2 was based on $N = 887$ public employees (GER) doing clerical and accounting work in different types of flexible work arrangements, including home-based telecommuting, external assignments with clients, and widespread part-time work. Study 3 analyzed a sample of $N = 263$ public managers (GER), which were the supervisors of employees in Study 2; the two parts of the study were separated in response to reviewer requests during the publication process. Study 6 was conducted among physicians (GER) from two hospitals and included analyses of two (non-independent) cross-sectional survey waves of $N = 159$ and $N = 142$ respondents as well as a longitudinal sample of $N = 91$. Study 7 introduced a sample of $N = 187$ clinical employees (GER) of a psychiatric-neurological hospital (e.g., nurses, therapists, counselors, etc.), including performance ratings of $N = 18$ supervisors. Study 8 used a convenience sample of $N = 179$ working parents from China, recruited during a school information event. The remaining two studies reanalyzed data from two of the above studies in different configurations and with different sets of focal constructs. Study 4 compared two samples, $N = 189$ hospital employees (USA) obtained in Study 1 (wave 2) and $N = 135$ hospital physicians (GER), overlapping with Study 6 (wave 1). Study 5 was a reanalysis of data from Study 1, using a pooled cross-sectional data set of $N = 373$ hospital employees from both waves (repeat responders included) and a smaller longitudinal panel of $N = 74$. Overall, the program was based on the analysis of ten cross-sectional samples, comprising altogether 2779 observations, and two longitudinal data sets, including 165 cases, based on $N = 1990$ persons in total.

3.4 *Statistical Analyses*

A widely shared study feature was the application of advanced statistical methods. Scale analyses included confirmatory factor analysis and hypothesis testing

involved structural equation modeling, using the software AMOS. An exception was the process-based regression approach in Study 8. Studies 4–8 included mediation analyses; moderator effects were examined in Study 8. Longitudinal data in Study 5 were analyzed in manifest-variable cross-lagged panel models; slightly less rigorous, Study 6 used undirected cross-lagged correlations. All studies included control variables to rule out biasing effects of demographic and/or job-related influences.

3.5 Measurement of I-Deals

The development of valid and reliable survey instruments for assessing i-deals was an integral part of the research program. Scales were revised and refined from study to study, resulting in psychometric improvements, but also reducing comparability. Studies differed in the number and wording of items as well as the included dimensions of i-deals. Study 1 had the broadest scope of measures, including scales on ex ante versus ex post negotiation timing and content relating to the number and distribution of paid work hours (i.e., increases or decreases) versus development and learning opportunities (e.g., special training or work assignments). Studies 2 and 3 introduced the distinction between individual working time flexibility (i.e., scheduling of work hours without affecting take home pay) and support for professional development. Study 3, conducted from the supervisor perspective, included workload reductions, which, however, showed only spurious relationships with antecedents and outcomes. Study 4 focused on task i-deals as a specific form of development arrangement. Based on Study 1 data, Study 5 included ex post negotiation as a general indicator of i-deals, such that the content of these arrangements was inferred from relationships with outcomes (i.e., job autonomy and distributive justice). Studies 6 and 8 both included the flexibility—development distinction, however, Study 8 used broader measures with a larger number of items (e.g., including flexibility regarding the number, distribution, and location of working hours). Study 7 introduced the most differentiated content measure, distinguishing between the three forms of flexibility, task, and career i-deals. Overall, well established and repeatedly replicated was the distinction between time-based flexibility and learning-based development i-deals, the latter including task and career-focused arrangements. With the exception of paid work hours in Study 1, i-deals on monetary or economic aspects, such as pay raises, promotions, or other material rewards, were not explicitly investigated.

3.6 Antecedents

Employee proactivity, operationalized in terms of personal initiative, is the most well-established individual antecedent of i-deals. Operationalizing proactive

behavior aimed at effecting positive changes as part of the self-starting, future-oriented, and persistent pursuit of personal and organizational goals (Frese et al. 1997), personal initiative predicted both flexibility and development i-deals in Studies 2 and 8 as well as from the supervisor perspective in Study 3. Although some studies have found effects of other personal attributes, such as gender and age, these results appear to be more context-dependent. The quality of the work relationship with the direct supervisor seems to be the most critical interpersonal or social factor for the successful negotiation of personalized arrangements. Evidence for this conjecture was found in Studies 4, 6, and 7. Less clear-cut were results on the organizational factors facilitating or constraining the use of i-deals. Structural forms of de-standardization, such as part-time work and telecommuting, seem to primarily support the negotiation of flexibility i-deals, however, in some settings this also extended to developmental arrangements. For instance, whereas in Study 7 a higher standing in the organizational hierarchy was associated with a greater extent of career i-deals, such arrangements were also more widespread among less privileged temporary workers. This suggests that individual negotiation may be used by employees in more “peripheral” workforce segments to compensate or overcome experienced relative deprivation.

3.7 Outcomes

The most substantiated outcome of flexibility i-deals was a reduction of stressful work-family conflict. Specifically, results of Studies 2, 3, 6, and 8 confirmed that flexibility arrangements are negotiated to offset overburdening job demands and support employees’ work-life balance. Further correlates included less overtime and lower work pressure, which was associated with reduced cognitive and emotional strain, as well as higher extrinsic work motivation, which was found to contribute positively to work-to-family enrichment. Although there is a concern that flexibility i-deals may lead to lower quality treatment by the employer (e.g., work assignments, training opportunities, promotions, etc.), only Study 2 provided some indication for such negative side-effects. However, i-deals increasing or decreasing the number of paid work hours had negative implications for employment quality. Lower social exchange perceptions and higher salience of economic aspects confirmed that i-deals are limitedly applicable to material or monetary aspects. Whereas flexibility i-deals appeared to benefit more directly the individual worker, developmental arrangements were tied to outcomes of particular organizational interests, such as employee attachment (affective commitment and social exchange), intrinsic motivation (work engagement), and performance (personal initiative, supervisor performance standards, overtime, and performance evaluations). Differentiating between task and career i-deals allowed a more specific allocation of outcomes related to performance and learning, but this distinction was based on a single study and needs to be interpreted with caution. The same holds true for potential negative side-effects of increased work-family conflict, which were found in Study 2 only.

3.8 Mediators

Some evidence was found suggesting that changes in extrinsic (e.g., distribution of rewards) and intrinsic (e.g., job autonomy) job features, respectively the activation of extrinsic and intrinsic motivational processes, mediated the relationship between i-deals and positive outcomes (e.g., work engagement and job satisfaction). Specifically, this refers to the results of Studies 4, 5, 7, and 8. Most substantiated in this regard was a mediating role of work characteristics, specifically higher autonomy or control at work, more complex or challenging work tasks, and lower levels of work stressors. Accordingly, i-deals have been advocated as an instrument for differential and dynamic approaches to work redesign and broader HR practices. However, results on the mediating roles of extrinsic and intrinsic processes were limitedly comparable and need to be subject to more explicit investigation. Study 8, although hampered by a relatively weak sample, has provided a first step in that direction.

4 Discussion

Heterogeneity and variety of i-deals means an abundance in manifestations of personalized employee-employer agreements and in the ways in which these are arrived at (Liao et al. 2016; Rousseau 2005). In the presented meta-study, the focus was on the two broader types of flexibility and developmental arrangements. Flexibility i-deals generally refer to an individually customized working time schedule, but can also include number of work hours, workload reduction, or work location. Development i-deals broadly refer to learning opportunities and have been differentiated into personalized work tasks and career support. I-deals on monetary or economic aspects, such as pay, promotions, and other material rewards were not explicitly investigated. In terms of negotiation processes, the focus was on employee-initiated, rather than employer-initiated arrangements, negotiated *ex post*, in an ongoing employment relationship, rather than *ex ante*, at the time of hire. The spectrum of examined antecedents and outcomes was selective and not intended to be comprehensive, but rather to reflect theoretical assumptions.

4.1 Limitations

Several limitations warrant mentioning. Research on i-deals lacks strong theory in the sense of an overarching framework applying tried-and-tested principles of basic science to theoretically relevant organizational problems. Indeed, research on i-deals developed in a more pragmatic way, starting with the observation of personalized work and employment conditions as a factual workplace phenomenon and suggesting that individual negotiations are a predominant way in which such special arrangements come about. Indeed, reviewed studies have drawn on different models and concepts, such as social exchange and motivational theories,

leadership, and models of work design, which are too diverse to be integrated into a single framework. Rather, the present review has tried to qualitatively integrate study results into a data-supported conceptual model. This meta-model, however, is still limited in scope. In particular, focusing on individual-level outcomes involves the risk of neglecting relevant systemic or collective effects, such as implications for organizational climate (Lai et al. 2009). Further, studies focused on successful negotiation, i.e., employee initiation and employer authorization, not taking into account negative implications of failed negotiations and unfulfilled or revoked personalized agreements. Methodological constraints arise from the predominant reliance on cross-sectional single-source data and context-specific assessment of i-deals (i.e., items, contents, and dimensions). Overlapping samples are due to multiple analyses of the same data in different configurations and with alternative sets of focal constructs. This non-independence was a minor concern because overlaps in analyzed relationships were limited and no quantitative aggregation was attempted. Biases can further arise from the merging of deduction and induction (i.e., theorizing and analysis), combined with partially opportunistic factors, such as field access, sampling, and publication opportunities. Arguably, these issues are not limited to or this particular research, but attributable to “real world” field research in general, progressing not in a linear, planned, and prospective fashion, but unfolding in an iterative, stepwise, and often retrospective process.

4.2 Implications for Research

The construct of i-deals was introduced by Rousseau (2001, 2005), based on the phenomenon of individualized employee-employer negotiations. At the outset of the presented research program, evidence was limited to indirect and anecdotal accounts. Reviewed studies represent an initial wave or first generation of quantitative research on i-deals, providing the impetus for a rapidly growing body of international research. At this point, it is still unclear whether i-deals can live up to their promise of both individualizing and humanizing organizations by transforming technocratic Tayloristic work structures into personalized custom-tailored jobs. While there is some indication for mutual benefits of i-deals, negative side effects appear to be limited. Theorizing and empirical research also suggest that benefits of i-deals can best be realized if such arrangements are used as secondary elasticities to increase the responsiveness and flexibility of a well-designed HRM system. Researchers are cautioned not to exaggerate the applicability or the positive effects of i-deals without mentioning potential constraints and boundary conditions.

4.3 Implications for Practice

Reviewed studies support the practical relevance of i-deals. Although scale means of i-deals tended to be low, evidence for their occurrence was found in all examined

organizational, occupational, and cultural contexts. The perspectives of employees negotiating for special terms and of supervisors authorizing such arrangements corresponded closely, such that each validated the other. Consistent patterns of associations with relevant outcomes confirm the importance of i-deals for the subjective experience of work. A practical implication is that both employees and managers are cautioned to pay attention to specific outcomes and potential side effects of different types of personalized agreements. One way to avoid negative consequences is to try to balance flexibility and development by tying non-standard working time arrangements to learning opportunities and goals—and vice versa. Further, managers are reminded of the fact that the use of individual negotiation as an instrument of employee-oriented leadership is contingent on the fulfillment of prerequisites, most importantly, adherence to principles of procedural justice.

5 Conclusion

I-deals offer a way for workers to obtain desired work-related resources not available to them through standard HR practices. Successfully negotiated developmental i-deals, such as learning support and customized work tasks are associated with higher work motivation, affective commitment, and increased job performance, while successful negotiation of flexibility i-deals improves work-life balance. Some tensions seem to exist between these two dimensions (Hornung et al. 2008). Development arrangements typically imply higher investments on the side of the individual employee, such as additional time, effort, and engagement (Bal et al. 2012); flexibility i-deals, on the other hand, reduce the dependence on temporal organizational working patterns and resulting working time-related demands (Vidyarthi et al. 2014). Thus, through the combination of development and flexibility i-deals, workers may be able to balance their level of involvement in the work domain according to their personal needs and preferences. However, such a “personal equilibrium strategy” may be seriously disrupted when requests for special arrangements are turned down, resulting in negative cognitive and affective responses and, potentially, impaired well-being (Hornung et al. 2010b). In this case, the coercive boundaries of rigid administrative practices reappear in form of lack of bargaining power or relationship quality to obtain desired non-standard conditions. Although research has shown that successful negotiation of i-deals is associated with positive employee responses, personalized arrangements imply the risk of increasing tensions among employees—in particular, if the organizational setting emphasizes competition for limited resources, rather than cooperation and solidarity among employees (Lai et al. 2009). It would be overly optimistic to advocate i-deals as a solution to the inherent tensions and contradictions employees in contemporary organizations are exposed to. Individual negotiation of work and employment features may actually evoke additional tensions. These require close attention if the beneficial effects of i-deals as a management practice are not to be undermined by negative side-effects (Hornung et al. 2008). What remains decisive

is the spirit in which these arrangements are made. Few if any positive stimuli can be expected from deals that are based predominantly on a market-logic (Rousseau et al. 2009; Turner and Auer 1994). Arrangements that are made in good-faith to accommodate the specific needs and situation of individual employees, however, may indeed provide an impetus towards developing more human-centered organizations.

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Primary Factors Keeping Employees at Their Positions: Cases from Turkish Workplaces

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Abstract The aim of this study is to identify the primary factors, which keep Turkish white-collar employees at their current positions. Using a convenience sampling method, surveys were conducted with 29 full-time white-collar employees in different sectors—predominantly in higher education, banking, and IT research and development. The primary factors keeping employees at their positions were dominantly motivators such as the work itself, achievement, responsibility, appreciation and recognition. Moreover, employees are more likely to be willing to stay longer at their positions, if it is rather motivators keeping them there.

Keywords Job satisfaction • Commitment • Two-factor theory of Herzberg • White-collar employees • Turkish

1 Introduction

High employee turnover has a decreasing effect on the efficiency of institutions. Turnover can be associated with high costs since the absence of a valuable employee means loss of relevant experience. Moreover, company's investment in that human capital is lost. Teamwork may also suffer, in terms of qualifications and harmony. Low job satisfaction is associated with high turnover. As of 2015 and as indicated by Table 1, more than one fifth of Turkish employees questioned by the Turkish Statistical Institute had medium to low job satisfaction at their current jobs. This statistic signals an issue worth investigating.

Turkish Statistical Institute (2016b) data also shows that the unemployment rate in Turkey changed from 9.9% in 2014 to 10.2% as of June 2016, while youth

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Table 1 Job satisfaction of Turkish employees from 2011 to 2015

Years	Job satisfaction at current job (%)
2011	29.67
2012	29.14
2013	21.22
2014	21.35
2015	21.68

Source: Turkish Statistical Institute (2016a)

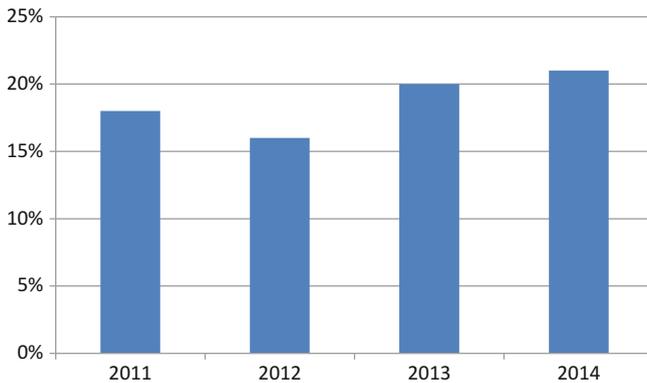


Fig. 1 Outward turnover rates—all reasons included. Source: Turkish Human Management Association and Towers Watson (2015)

unemployment increased from 17.9 to 19.4% during the same period. One would expect the employee turnover rate to be low, due to that high unemployment. However, employee turnover in the private sector of Turkey has reached an average of 21% in 2014 (Fig. 1). This situation constitutes a reason for our studying the issue of employee satisfaction.

In this study, we aim to identify the primary factors, which keep employees at their current positions. This issue is important, because those factors determine how much employees are motivated at their jobs, and the time period during which they are willing to stay in their positions. Therefore, the answer may shed light to organizations by indicating the order of importance of relevant factors for keeping their human capital.

To our knowledge, there is a lack of studies examining our research question. Although there are many studies investigating the relationship between job satisfaction and organizational effectiveness (such as Koys 2001), and between job satisfaction and commitment, we did not come across studies focusing on the factors that keep employees at their current jobs. In this sense, we offer an expansion of the construct of job satisfaction.

2 Theoretical Background

In a study conducted by Seo et al. (2004), a set of paths through which affective feelings at work affect three dimensions of behavioral outcomes, were identified. These dimensions are direction, intensity, and persistence. Affective experience may affect these behavioral outcomes directly or indirectly “by affecting goal level and goal commitment, as well as three key judgment components of work motivation: expectancy judgments, utility judgments, and progress judgments” (Seo et al. 2004, p. 423).

Herzberg (1987) examines the factors that cause ‘white collar’ employees and managers to be satisfied and dissatisfied. Giving an employee a challenging work enables her/him to take responsibility and moreover, the importance of providing opportunities for recognition is emphasized (Herzberg 1987).

Herzberg differentiated between job content and job context. The growth factors are intrinsic to the job, whereas the “stimuli inducing pain-avoidance behavior are found in the job environment” (Herzberg 1987, p. 113). Five factors that most often contributed to employee dissatisfaction are perceived fairness of company policy, pay, working conditions, relations with one’s supervisor, and relations with coworkers. Herzberg stated that to satisfy or motivate employees a different set of factors were needed. These satisfiers included achievement, recognition, the work itself, responsibility, and advancements. Factors that produce satisfaction are named as motivators, while those producing dissatisfaction are called hygiene factors; and both are regarded as vital for high employee performance.

The motivators have a potential influence on core affective experiences of employees, which—as stated by Seo et al. (2004)—affects the direction, intensity and persistence of employee behaviors. This is what makes the issue of motivators important both for theory and practice. In our study, we made use of Herzberg’s two-factor theory. Our hypothesis was that the primary factors keeping employees at their positions would be motivators, and that the hygiene factors would be mentioned less and/or secondarily.

Meyer and Allen (1991) utilized Herzberg’s (1966) hygiene/motivator distinction for the purposes of classifying the antecedents of commitment into two sub-groups as: “those that satisfied employees’ need to feel comfortable in the organization, both physically and psychologically, and those that contributed to employees’ feelings of competence in the work role” (Meyer and Allen 1991, p. 70).

We think that, such differences in antecedents of commitment may lead to different levels of commitment. For instance, we expect the commitment of an employee who mentions motivators for why s/he is staying; to be higher and/or longer-term than that of another who rather mentions the hygiene factors. This is why we asked our respondents how much they are “willing to stay in the short, medium and long-term”.

Wasti (2005) provided evidence that indirectly supports our expectation. The author examined the influence of different types of commitment on various job-related outcomes, namely job stress, withdrawal cognitions, turnover behavior,

organizational citizenship behaviors, attendance, and performance. She found that the “highly-committed, affective-normative dominant and the affective dominant profiles demonstrated the most desirable job behaviors”. Moreover, the “non-committed profile showed the least desirable outcomes, followed by the continuance dominant profile” (Wasti 2005, p. 2).

3 Methodology

We have used a convenience sampling method and have conducted surveys with 29 full-time white-collar employees in different sectors—predominantly in higher education, banking, and IT research and development. All employees except for two have at least their bachelor’s degree from a university. Those working at higher education institutions are either university professors/lecturers/assistants or administrative staff. Table 2 illustrates the demographic characteristics of the study group.

Our respondents have been asked three open-ended questions on *primary factors* keeping the employees at their job, on *job satisfaction* and *job dissatisfaction*, six multiple-choice questions about their *willingness* and *probability* to continue working at their current job, and 43 multiple-choice questions derived from the short-form of Minnesota Satisfaction Questionnaire (MSQ)¹ and from studies conducted by Erogluer and Duygulu (2006), and Ayan et al. (2009).

Table 2 Characteristics of the study group

		n	%
Age	20–30	11	37.9
	31–40	12	41.4
	41–50	3	10.3
	51–60	3	10.3
Gender	Male	10	34.5
	Female	19	65.5
Industry	Higher education	13	44.8
	Banking	5	17.2
	IT/R&D	4	13.8
	Logistics	2	6.9
	Other	5	17.2
Total work experience	0–5 years	9	31.0
	6–10 years	7	24.1
	11–15 years	2	6.9
	16–20 years	5	17.2
	>20 years	6	20.7

¹The MSQ originally is a questionnaire designed by the Vocational Psychology Research of the University of Minnesota to determine how satisfied or dissatisfied employees are about different aspects of their job. It uses 5-point Likert scale.

4 Findings

We have started our analysis by matching the respondents' answers to the open-ended question on the primary factors keeping them at their current positions with the factors in Herzberg's two-factor theory. Each of us evaluated the factors mentioned by the respondents whom they surveyed. Then, we verified each other's evaluations. Finally, we have interpreted the influence of motivators and hygiene factors on employees' willingness to continue at their current positions.

Our hypothesis was that the primary factors keeping employees at their positions would be motivators, and that the hygiene factors would be mentioned less. Indeed, this was the case. In total, the respondents answered with 57 motivators and only 38 hygiene factors. The *work itself* was the most frequently mentioned motivator (23 times out of 57). Among the 1st mentioned primary factors are: work itself (12 times), achievement (2 times), responsibility (3 times), appreciation (1 time), recognition (4 times), working conditions (6 times), and pay (3 times).

We expected that each respondent would mention motivators more. Although there are some unexpected cases, in general our findings provide supporting evidence. 18 respondents mentioned more motivators, while 8 mentioned more hygiene factors and 3 answered with an equal number of the two factors.

We expected that employees are more likely to stay longer at their positions, if motivator factors are dominantly keeping them there; and shorter, if hygiene factors are more effective. However, our data did not support this expectation. When we explored the data in more detail, *pay* stood out as a dominant factor among the hygiene factors. In fact, this was not a surprise as, according to Herzberg's findings, pay is the hygiene factor which is mostly related with job satisfaction. Thus, we excluded "pay" from the hygiene factors. Then, it was possible to differentiate between the respondents' willingness to stay based on their frequencies of mentioning the two factors.

Based on data presented in Table 3, we have divided the respondents into three groups:

- those who mentioned motivators more,
- those who mentioned hygiene factors more, and
- those who mentioned motivators and hygiene factors equally.

In order to provide a better understanding of our findings, we present two outlier cases. Case 21 mentioned only hygiene factors of:

- social rights,
- harmony with colleagues, and
- pay.

Table 3 The number of motivators and hygiene factors that were mentioned by respondents

Respondents	Motivators	Hygiene factors	Hygiene factors except pay
1	4	1	1
2	3	1	1
3	6	1	1
4	4	3	3
5	3	2	2
6	1	2	1
7	0	4	3
8	2	1	0
9	3	1	0
10	2	1	0
11	2	0	0
12	1	0	0
13	1	0	0
14	2	2	1
15	1	0	0
16	1	2	2
17	1	2	2
18	4	1	1
19	3	0	0
20	2	2	1
21	0	3	2
22	0	1	0
23	1	3	2
24	1	0	0
25	1	1	0
26	4	2	1
27	0	1	0
28	2	1	0
29	2	0	0

Case 3, on the other hand, listed the highest number of motivators among all respondents. She mentioned the following:

- having added value at all developmental stages of the institution,
- having trust that her efforts are being appreciated,
- openness of work environment to improvement and development,
- motivation and autonomy provided by the supervisor, and
- talent management.

In the short term, most respondents were highly willing to stay. A potential reason might be the risk of not finding another job immediately. In the long term, there was a general downward tendency in the willingness to stay. One possible explanation for this might be the demographic characteristics of respondents, particularly being close to the age of retirement. Thus, we have focused on the willingness of employees to stay in the *medium-term*.

Table 4 Number of respondents according to their reason and willingness to stay in the medium-term

	Willingness to stay in medium-term		
	Low	Medium	High
More motivators mentioned	2	5	14
More hygienes mentioned	0	3	2
Number of motivators mentioned equals that of hygienes	1	1	1

Those respondents who mention motivators more as a reason to stay, are more “highly willing to stay” (67%) than those who mention hygiene factors (except pay) more (40%) in the medium-term (see Table 4).

5 Conclusion

Turnover can be associated with high costs since the absence of a valuable employee means loss of relevant experience. The company’s investment in that human capital is lost and teamwork may suffer. Low job satisfaction is associated with high turnover.

In this study, we identified the primary factors, which keep Turkish white-collar employees at their current positions. These factors determine how much employees are motivated at their jobs, and thus the time period during which they are willing to stay in their positions.

Our expectation that the primary factors should be the motivators of Herzberg’s two-factor theory was fulfilled. Among the 1st mentioned primary factors are: work itself, achievement, responsibility, appreciation, recognition, working conditions, and pay. Employees who mention motivators more may be willing to stay in their positions mostly due to the intrinsic satisfaction they get from their jobs; while those who mention hygiene factors more, to avoid dissatisfaction, risks and/or difficulties.

In future studies, it can be better to utilize a more specialized or balanced sample in terms of gender and industry. It may also be interesting to compare factors relevant for blue- and white-collar employees. As most blue-collar workers are in a more difficult financial situation compared to white-collar ones, primary factors keeping them at their positions may tend to fall into the hygiene factors of Herzberg.

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The Relationship Between Work-Related Behavior and Experience Patterns and Organizational Commitment

Michael Hager and Tatjana Seibt

Abstract The challenges of today's working life lead to stressful experiences and therefore to different types of coping patterns. The relationship between these coping patterns and organizational and professional commitment is not yet fully researched. This study has been conducted with about 180 participants using the questionnaires Work-related Behavior and Experience Patterns (AVEM—AVEM is the acronym for “Arbeitsorientiertes Verhaltens—und Erlebensmuster” which translates to Work-related Behavior and Experience Patterns) and the Test of Affective, Normative and Continuous Commitment to the Organization, the Profession and the Type of Employment. The results showed a significant correlation between coping patterns and organizational and professional commitment. The findings support the assumption that coping patterns indicate certain types of commitment and individual attitudes. The type of coping pattern should therefore be monitored closely in order to avoid the negative withdrawal behavior that entails a lack of commitment.

Keywords Work-related behavior and experience patterns • Organizational commitment • Professional commitment

1 Introduction

The experience of work-related stress and the perceived intensity of professional challenges are not only dependent on circumstances, but also on personal and social resources as supporting and buffering factors. This view has been supported by Antonovsky (1987). An individual is therefore an active element in dealing with professional demands and strains. Research has strived to take personal traits into account; especially because the early identification of one's coping behaviors allow

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recommendations for interventions before the symptoms of unhealthy coping behaviors have occurred (Kieschke and Schaarschmidt 2008). This is in line with previously conducted research that affirms that personality type gives a more comprehensive picture of an individual's character than the dimensions of personality alone (Votmer et al. 2010).

In addition to different coping behaviors, the level and type of commitment is deemed as an important influence on a person's organizational behavior. For example, organizational commitment is considered as a predictor for unfavorable withdrawal behavior of employees. (Goulet and Frank 2002). The question arises if coping patterns indicate a certain kind of commitment of an individual and expectations towards the occupation. This relationship between coping behavior and commitment has not yet been extensively covered. This paper aims to further analyze these relationships.

1.1 Work-Related Behavior and Experience Patterns (AVEM)

AVEM is a questionnaire that has been developed as a tool to gather self-reported data about personal experiences with work related stress and typical behavioral responses in coping with stress. Three major areas are covered by AVEM: professional commitment, coping capacity and subjective well-being in the context of work. These major areas are assessed with 11 separate scales, for example the subjective significance of work, the professional ambition or the experience of social support. Each scale contains 4 items with responses in a Likert-type format ranging from 1 (strongly disagree) to 5 (strongly agree) (Kieschke and Schaarschmidt 2008). Depending on the result of these 11 scales, four clusters are obtained which allow a statement about the individual health and coping patterns. These are discussed in health psychology to be either risk factors or resources for an individual's mental and physical health and therefore positive coping patterns (Schulz et al. 2011). The positive patterns are divided into pattern G, which stands for good health, and pattern S, which marks an attitude of sparing personal investment at work. The two risk patterns are called risk pattern A, standing for ambitious, and risk pattern B, which translates to burnout (Kieschke and Schaarschmidt 2008).

Pattern G is the most favorable pattern, as high scores in the dimensions of professional ambition, resistance against stress and emotional well-being are achieved. People with this pattern show the will to perform at a high level, but they also have the ability to relax and to distance themselves from work-related problems. Individuals belonging to pattern S restrict their efforts at work to what is absolutely necessary. Low scores of subjective significance of work and professional ambition are clustered with the highest scores of emotional distancing. High scores are achieved on the scales balance and mental stability and on satisfaction

with life. This combination implies good coping behaviors with a low appreciation of success at work. This low appreciation may be a personal trait, but can also result from poor professional challenges or working conditions. Risk pattern A matches high scores in the dimension of professional ambition with low scores on scales like emotional distancing and resilience. A-type people are willing to perform but face difficulties to withstand excessive stress and work-related demands. They do not get enough emotional benefits for their efforts and thereby experience low job satisfaction. Individuals with this pattern have difficulties to relax and to disconnect from daily work problems. This pattern leads to increased health risks such as cardiovascular diseases. Finally, risk pattern B, the burnout pattern, is the least favorable pattern and includes typically low scores that are achieved in the dimensions related to professional commitment, resistance to stress, and emotional well-being. High scores are obtained in the dimensions of professional ambition and resignation tendencies. (Kieschke and Schaarschmidt 2008).

Burnout is characterized by physical and emotional exhaustion in which a professional no longer has any positive feelings or sympathy and is unable to successfully deal with the overwhelming stresses of the job (Maslach 1982). It can be defined through the three core dimensions of emotional exhaustion, depersonalization and efficacy (Maslach et al. 2001). Subsequently, burnout is not only a substantial burden for the individual, but is also associated with mental disorders, physical illness and an increased number of work absence which may lead to a major economic burden to employers in terms of lost workdays and reduced productivity (Ahola et al. 2008, p. 186).

According to the authors of the questionnaire it is important to highlight that the result of a single scale is not an indicator for an unhealthy behavior. The contributing factor is rather the combination of different scales which allow the definition of a favorable or unfavorable pattern. For instance, the scale striving for perfection alone is not an indicator of pattern G or A, as both patterns score high on this scale. Only if matched with other scales like balance and mental stability or emotional distancing, where pattern G scores high and pattern A scores low, the pattern is conclusively defined (Kieschke and Schaarschmidt 2008). AVEM has already been applied to professional groups like nurses, teachers, professional fire brigades, medical students, physicians and entrepreneurs. It has been revealed that the distribution of coping patterns varies tremendously between professional groups. A study including data of more than 7600 teachers shows a disproportionately high amount of almost 60% of risk patterns A or B. Entrepreneurs or business founders on the other hand show a high frequency of the healthy pattern G, but also a high share of the risk pattern A, with the highest tendencies of overexertion and self-exploitations. The highest percentage of the pattern type S has been found in the professional groups of professional fire brigades and nurses (Kieschke and Schaarschmidt 2008).

The explanation for these different distributions of coping patterns is multifaceted. Part of the reason is the different demands, challenges and working environments a profession poses. Teachers for example report stressful conditions including the behavior of difficult pupils or large class sizes which may explain

their large share of type B coping patterns. Nurses and professional fire brigades on the other hand show a large proportion of pattern S which indicates limited work satisfaction within these professions. However, apart from the external environment, the distribution of coping patterns depends also on the personal traits and motivational factors of an individual. That means that effects of self-selection have to be taken into account when these results are evaluated (Kieschke and Schaarschmidt 2008). For example, people with a predominantly positive and optimistic attitude or an above average hunger for success may choose to start their own business. Both these traits may lead to a preference of either pattern G or A instead of pattern S or B. Research shows that the distribution of coping patterns in a profession can vary depending on specific types of activity and job descriptions. For example, the results for medical nurses and psychiatric nurses differ significantly from each other, despite both groups being nurses (Voltmer et al. 2013).

In addition to the distribution of the patterns in professional groups, also the relationship of AVEM to other aspects of organizational behavior or individual conditions has been examined. AVEM has been set in context of the mental and physical health status of nurses with the result that unhealthy patterns are indeed associated with reduced mental and physical health (Schulz et al. 2011). Another study analyzed the relationship between AVEM and mental health of teachers and shows a correlation between unhealthy patterns and low mental health (Zimmermann et al. 2012). Furthermore, research has revealed a correlation between the occurrence of morally positive valued traits (i.e. strengths of character) and coping patterns as healthy patterns differed in their strengths profiles from those that demonstrated unhealthy patterns (i.e. burnout type) (Gander et al. 2012, p. 898). Long-term studies show that pattern S and pattern A are the most prone to change after time into risk pattern B (Voltmer et al. 2010, 2013). If these risk patterns are not addressed properly negative consequences for mental and physical health are probable (Voltmer et al. 2011; Goetz et al. 2012).

1.2 Affective, Normative and Continuous Commitment

There is a variety of definitions of commitment depending on the respective author's interests and perspectives. All of them revolve around the core assumption that commitment is a stabilizing or obliging force that gives direction to behavior (Meyer and Herscovitch 2001). Meyer and Herscovitch examined the most popular definitions in an approach to extract their similarities and to come up with a holistic model. This model became famous as the three-component model. According to this model commitment can be generally defined as a force that binds an individual to a course of action of relevance to a target and is characterized by three mind sets (aka. Components):

1. Desire: Affective commitment
2. Obligation: Normative commitment
3. Perceived Costs: Continuance commitment

Affective commitment reflects commitment based on positive emotional ties, e.g. the ones that an employee develops with the organization or a profession via positive work experiences. In contrast, normative commitment is defined by perceived obligation. This type of commitment can be caused by the norms of reciprocity or because an individual does not want to forego certain benefits he or she gets from pursuing a course of action of relevance to a target. The third commitment type, continuance commitment, is characterized by the perceived costs, both economic and social, of leaving the target the commitment is oriented towards. Examples are the perceived costs of leaving an organization or changing one's profession. According to the model, commitment can reflect varying degrees of all three mind sets (Meyer and Herscovitch 2001, pp. 316–317).

Consequently, an individual can feel commitment towards various things, for example towards an organization or a profession but also towards a hobby, an attitude or a policy. Jaros (2007, p. 7) states in his analysis of the three-component model, that the model has been used by researchers to predict important employee outcomes, including turnover and citizenship behaviors, job performance, absenteeism, and tardiness. For instance, the role of organizational commitment as a predictor for withdrawal behaviors like turnover has been extensively researched. A meta-analysis of 124 studies showed that organizational commitment was positively correlated with job attendance and had a negative linear relationship to lateness and turnover (Goulet and Frank 2002). For this paper a questionnaire is used that tests specifically the three components of commitment in terms of the organization and the profession (Felfe et al. 2005).

2 Hypotheses

Based on the literature review it is expected that different coping patterns will show different values of commitment. As it can be stated that commitment can be felt towards different aspects of professional life, a more granular definition of scope is necessary. Consequently for the purpose of this study, the organizational and the professional commitment are to be analyzed. Each of these two dimensions will be further divided into the three components according to Meyer and Herscovitch (2001), leading to six categories of commitment in total:

- Affective organizational commitment (OCA)
- Continuous organizational commitment (OCC)
- Normative organizational commitment (OCN)

and

- Affective professional commitment (PCA)
- Continuous professional commitment (PCC)
- Normative professional commitment (PCN)

The distinction between organizational and professional commitment shall provide insights as to whether the coping patterns correlate with different types of commitment.

Based on these thoughts the following hypotheses are presented:

H1: Depending on the type of coping pattern, different levels of organizational and professional commitment are present.

H1a: Coping pattern G tends to score high results on affective commitment.

H1b: Coping patterns A and B tend to report high results on continuous and normative commitment.

H1c: Coping pattern S tends to score generally low results on all commitment scales

3 Method

3.1 Survey Tool and Participants

Participants were recruited among the students of a medical school and of the University of Applied Management Munich, as well as their network. Participants of the study were encouraged to pass information about the survey on to other potentially interested contacts in order to increase the sample size. Participants received no incentives for their contribution. The survey has been available on the online platform social science survey (run by SoSci Survey GmbH) from April to June 2016 through a public link (www.soscisurvey.de).

3.2 Materials: Questionnaires and Statistical Analysis

The online survey included demographic questions including gender, age, type of employment, level of education and managerial responsibility as well as two standard questionnaires: Work-related Behavior and Experience Patterns (Schaarschmidt and Fischer 2008) and Test of Affective, Normative and Continuous Commitment to the Organization, the Profession and the Type of Employment (part-time or full-time) (Felfe et al. 2005). There was a possibility to drop out at any time during the process of the questionnaire. Cronbach alphas for the different scales of commitment are presented in Table 1.

All but one result for Cronbach Alpha are on an acceptable level. The results for the scale affective organizational commitment should be interpreted with caution as its Cronbach Alpha is slightly below the generally accepted boundary of 0.6. Analyses were performed using SPSS version 21.0. Questionnaire data were analyzed using chi-squared tests for categorical data and the Univariate Analysis of Variance for continuous data, respectively. The level of significance was set at $p < 0.05$.

Table 1 Cronbach’s Alpha for types of commitment

Type of commitment	Cronbach’s Alpha
Affective organizational commitment	0.527
Continuous organizational commitment	0.681
Normative organizational commitment	0.800
Affective professional commitment	0.935
Continuous professional commitment	0.830
Normative professional commitment	0.720

Source: Developed by the authors

4 Results

4.1 Response Rate and Sample Description

197 participants have taken part in the study and 184 fully completed the questionnaire (n = 184). The study population comprises 135 women (73.4% of the sample) and 49 men (26.6%). The age group 18–25 years is most represented with 79 people (42.9%) followed by the group of 26–35 years with 50 persons (27.2%) and the group <18 years with 20 individuals (10.9%). The least represented age group is the cluster between 56 and 65 years with 6 people (3.3%). Most participants of the study are employed full-time (74 persons; 40.2%) or part-time (49 persons; 26.6%). 38 participants (20.7%) are apprentices and 12 participants (6.5%) are self-employed. 9 people (4.9%) are at the time of the study unemployed. They were asked to describe their last employment in order to enable their contribution to the study. Regarding the highest degree of school education, 67 subjects (36.4%) have reported to have vocational qualification, while 61 participants (33.2%) hold a degree from a university and 47 (25.5%) have an Abitur/Matura (a diploma from a German/Austrian secondary school). From the sample 43 participants (23.4%) have managerial responsibility, compared to 141 (76.6%) persons with no such responsibility. It is worth noting that the study was, amongst others, promoted in a dental assistant’s school that is mainly attended by females. This explains the high amount of young women with a vocational degree in the sample. This partial bias is tolerated for this study in order to undertake the first step in this research and will be addressed properly in later studies.

4.2 Work-Related Behavior and Experience Patterns (AVEM)

From 184 participants of the study 60 people (33%) show the pattern G and 49 persons (27%) show the pattern S, which amounts to 60% of healthy coping patterns. The risk type A is represented with 22 participants (12%) and the risk type

Fig. 1 Distribution of dominant AVEM patterns after adjustment. Source: Developed by the authors

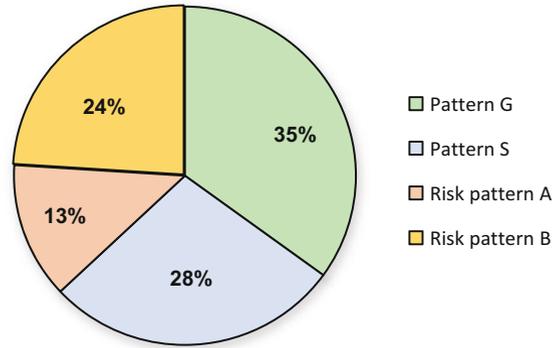
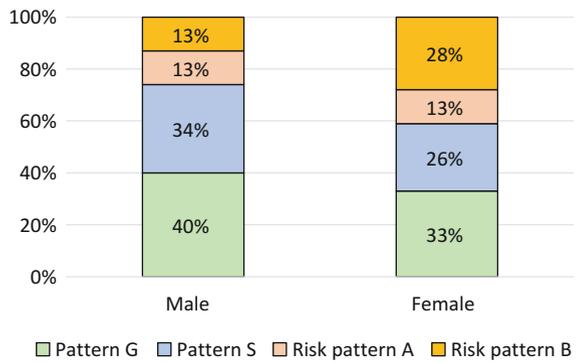


Fig. 2 Distribution of AVEM types in gender comparison. Source: Developed by the authors



B with 42 persons (23%). 10 persons (5%) do not have a dominant pattern as their test results cannot be assigned clearly to one specific type. These indifferent types are excluded from further research in order to avoid a distortion. One questionnaire record was defect and cannot be processed further. Consequently 173 records remain for further analysis. The final distribution of dominant coping patterns is presented in Fig. 1.

The distribution of AVEM patterns with regard of gender shows that pattern B is represented in the column females substantially more often. In turn the healthy patterns G and S are reported more frequently for men (see Fig. 2).

A comparison of the distribution of coping patterns between the different types of employment (see Fig. 3) shows a relatively even distribution between full-time employment, part-time employment and apprentices. The data about self-employed persons reveals an outstanding share of pattern G types with 73% and no B type individuals. However, as only 11 participants are assigned to the group of self-employed persons, the results are not of statistical relevance. The same reason applies for the results of unemployed persons, as this group only persists of nine persons. They were not excluded for the survey and were asked to describe their feelings to their last occupation.

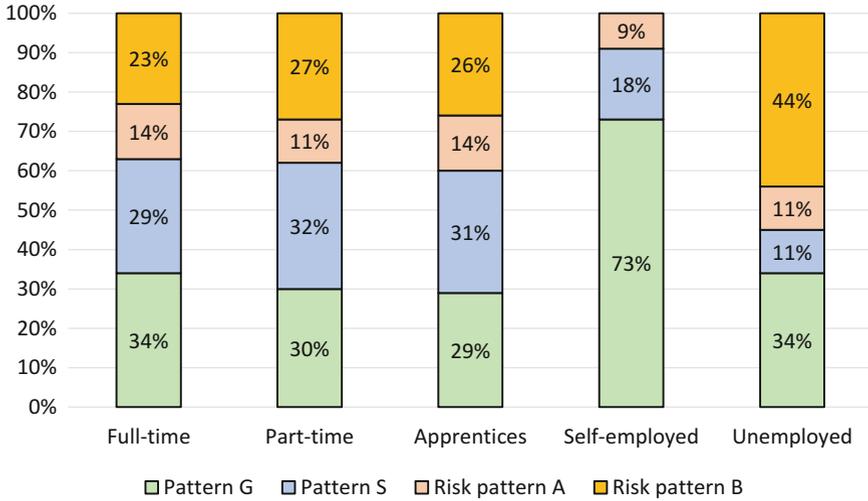


Fig. 3 Distribution of AVEM types in type of employment comparison. Source: Developed by the authors

Their results show the highest share of pattern B of all types of occupation. In addition to the lack of significance due to the small sample size, a possible explanation might be that persons with the type B pattern in particular lose or quit their job, experience difficulties to find a new one or express hard feelings when asked about their last occupation.

4.3 AVEM and Commitment

Regarding affective organizational commitment The ANOVA test showed a significant difference between the AVEM patterns ($F(3,161) = 10.17$, $MSE = 222.9$, $p < 0.001$). Specifically, the post-hoc Bonferroni test revealed a significant difference between the pattern G and patterns S and B at the 0.05 level of significance. Type G shows the highest affective organizational commitment ($M = 19.5$, $SD = 4.6$) of all patterns, followed by A ($M = 17.2$, $SD = 4.9$) while pattern S ($M = 15.8$, $SD = 4.9$) and pattern B ($M = 14.6$, $SD = 4.6$) scored lower.

In addition the ANOVA test revealed a significant difference between the AVEM patterns regarding continuous organizational commitment ($F(3,161) = 6.0$, $MSE = 82.4$, $p < 0.01$). The post-hoc Bonferroni test showed a significantly high difference between pattern G and pattern B at the 0.05 level of significance, while pattern S is significantly different compared to patterns A and B. Type B reports the highest continuous organizational commitment ($M = 13.5$, $SD = 3.3$) of all patterns, closely followed by A ($M = 13.1$, $SD = 4.1$) while pattern G ($M = 11.3$, $SD = 4.1$) and pattern S ($M = 14.6$, $SD = 4.6$) scored lower.

The ANOVA test showed a significant difference between the AVEM patterns regarding normative organizational commitment ($F(3,160) = 2.7$, $MSE = 69.0$, $p < 0.05$). The post-hoc Bonferroni test showed a significantly high difference between pattern S and pattern B at the 0.05 level of significance. Pattern B, G and A report almost the same results regarding the mean (B: $M = 14.0$, $SD = 5.0$ /G: $M = 13.6$, $SD = 5.5$ /A: $M = 13.6$, $SD = 5.0$). In contrast pattern S shows a lower level of normative organizational commitment ($M = 11.2$, $SD = 4.5$).

Regarding affective professional commitment the ANOVA test indicated a significant difference between the AVEM patterns ($F(3,162) = 12.2$, $MSE = 564.0$, $p < 0.001$). A significantly high difference between pattern G and pattern S and pattern B at the 0.05 level of significance has been revealed by post-hoc Bonferroni, as well as a significantly high difference between pattern A and pattern B. Type G ($M = 27.4$, $SD = 6.7$) and A ($M = 27.0$, $SD = 4.9$) report by far the highest affective professional commitment. Lower scores are achieved by pattern S ($M = 22.7$, $SD = 5.0$) and pattern B ($M = 19.7$, $SD = 6.8$).

The ANOVA test showed a significant difference between the AVEM patterns regarding continuous professional commitment ($F(3,162) = 3.7$, $MSE = 94.7$, $p < 0.05$). The post-hoc Bonferroni test showed a significantly high difference between pattern S and pattern A and pattern B at the 0.05 level of significance. All other comparisons were not significant. Type A ($M = 13.9$, $SD = 5.1$) and B ($M = 13.9$, $SD = 5.6$) report the highest continuous professional commitment. Lower scores are achieved by pattern G ($M = 11.6$, $SD = 4.9$) and pattern A ($M = 10.8$, $SD = 4.8$).

For normative professional commitment the ANOVA test revealed a significant difference between the AVEM patterns regarding ($F(3,162) = 3.8$, $MSE = 47.0$, $p < 0.005$). The post-hoc Bonferroni test showed a significantly high difference between pattern S and pattern A and pattern B at the 0.05 level of significance. Type A ($M = 10.1$, $SD = 3.4$) and B ($M = 9.9$, $SD = 3.3$) report the highest normative professional commitment, while pattern G ($M = 8.8$, $SD = 3.7$) and pattern S ($M = 7.7$, $SD = 3.6$) scored lower.

The described results are summarized in Fig. 4 which shows the mean of the respective type of commitment for each AVEM type.

5 Discussion

According to the results of this study, the commitment to the organization and the profession on the affective, normative and continuous level correlates with the coping type. Therefore H1 can be confirmed. This result is in line with the expectation of the authors as the AVEM questionnaire incorporates the testing of professional commitment as one of its three major testing areas which lead to the determination of the coping type. Organizational commitment is not explicitly stated as a part of the AVEM questionnaire. Therefore the results of this study in this regard were not anticipated. The subhypotheses H1a, H1b and H1c can be

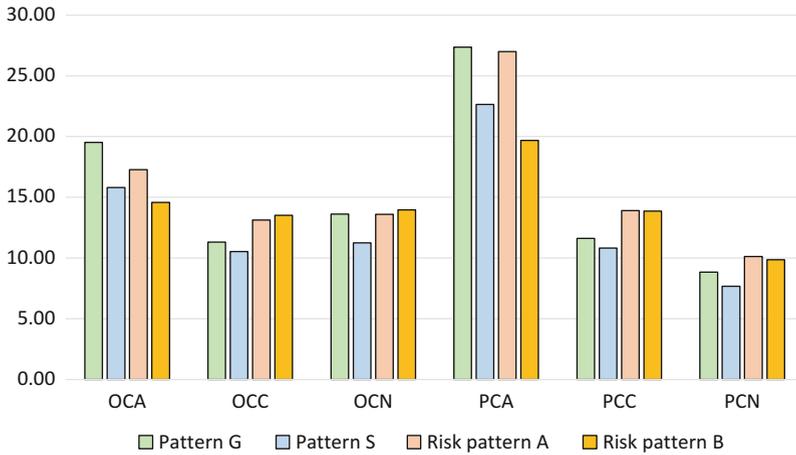


Fig. 4 Mean of each type of commitment for each AVEM type. Source: Developed by the authors

confirmed as well. Pattern G shows the highest level for affective commitment, while the risk patterns A and B report high results on continuous and normative commitment. The study results also reveal that pattern S achieves the lowest scores on all commitment scales. It can be assumed that based on the AVEM type, the underlying stimulus of an employee to perform can be predicted. This finding may be helpful in order to understand the motivation behind an individual’s behavior.

Certain demographic tendencies emerged throughout the course of this study. Females showed a higher proportion of the risk pattern B and less healthy coping patterns than males. The question if females are more prone to evolve into a risk type or if they are exposed to more stressful working conditions cannot be finally concluded and will be the subject of further studies. This applies equally for other demographic traits like age or type of employment which showed tendencies to certain types of coping patterns. As a further consequence of the findings, companies should not only focus on AVEM types because they show the current picture of an individual’s subjective well-being, but also implicate the type and level of commitment and therefore possible future withdrawal behavior.

5.1 Limitations

As the study sample was somewhat biased to certain demographics (young female) a simple projection to a population is not possible. In addition, some analyzed demographic groups like self-employed or unemployed people were relatively small in numbers and therefore a statistically significant statement was not possible. It is also questionable if the use of the administered questionnaires makes sense for

unemployed people as they cannot describe their current attitude to a job or organization. In future studies the choice of the sample group will be further refined in order to analyze either a complete randomized sample or a specific classification like the profession or the type of employment. This would also allow for the comparison of the distribution of the AVEM types to already conducted studies.

Furthermore, only dominant coping pattern types have been analyzed in this research. Indifferent coping patterns have been excluded because they were not present in significant numbers and the authors decided to only focus in this first step of research on dominant types. In order to get a holistic picture of the relationship between coping patterns and their dependent variables also indifferent types of coping patterns should be examined.

6 Conclusion

According to the results of this study, work-related behavior and experience patterns have a correlation with organizational and professional commitment on the affective, normative and continuous level. It has been revealed that the healthy coping pattern type G shows the highest degree of affective commitment for both organizational and professional commitment. In contrast, the risk patterns A and B show the highest degree of continuous and normative commitment. As affective commitment is characterized by the intrinsically motivated desire to pursue a certain target, it can be assumed that the creation of an environment which supports personal involvement, fulfilment and meets an employee's expectations towards an occupation is beneficial for an individual's commitment as these factors support the creation of affective commitment (Meyer and Herscovitch 2001, pp. 316–317). From management's perspective, employees with the risk patterns A or B should be monitored closely in order to avoid negative behavior that may include a lack of commitment. In the case of negative risk patterns, it should be questioned whether assigned tasks and job resources are allocated appropriately with regards to the individual needs of an employee.

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Moodle as a Key Tool in Students Organization and Communication When Participating in Online Distance Courses

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Abstract The aim of this study is to demonstrate how Moodle helps students in their distance electronic learning process. The survey results are intended to show how Moodle can help the distance electronic courses in three Greek universities, the Piraeus University of Applied Sciences, Hellenic Open University and TEI of Epirus, to investigate any problems and to propose improvement measures for qualitative learning. The working methodology will be based on the collection of primary and secondary data. The original data will be collected by conducting quantitative research using questionnaire as main tool. The sample will be undergraduates and postgraduates students. Results revealed that students consider Moodle as an easy platform, which does not require specialized knowledge on how to use it. This is an important factor in encouraging students and the continuation of their studies. Students seem to prefer Moodle as they find it easy and revisory though is not effective enough in learning as students are not completely satisfied by the communication with their teachers, the media used and the study suggests. Finally, we found that women evaluate Moodle higher in comparison to men.

Keywords Moodle • Distance electronic courses • Online distance learning process • Course management classes

1 Introduction

At a time like the present, which is characterized by globalization and the rapid development of Information and Communication Technologies, significant changes take place in society, the economy and in the formation of a new educational reality. Distance learning is one of the new forms of the new educational reality. Distance

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learning, or dlearning, or D-Learning, is a method of delivering education and instruction, often on an individual basis, to students without their physical presence at a traditional environment, such as a class. Distance learning provides “access to learning when the source of information and students are separated by time and distance, or both” (Honeyman and Miller 1993, pp. 67–73).

The courses of distance learning that require the physical presence for any reason (including examinations), are called hybrid (Tabor 2007) or mixed programs (Vaughan and Norman 2010). A recent development in distance learning are the massive open online courses (MOOCs), aimed at the large scale interactive participation and open access through the Internet or other networking technologies.

The technologies used in distance learning distinguish education into two categories based on the delivery of the courses: synchronous learning and asynchronous learning. In synchronous learning, all participants are “present” at the same time. In this respect, it resembles the traditional teaching methods in the classroom, although the participants are away. It requires the organization of a timetable and modern technology techniques such as web conferencing, teleconferencing, educational television, and direct broadcast satellite (DBS), internet radio, live streaming, phone and web-based VoIP (Lever-Duffy and McDonald 2007).

In asynchronous learning, the participants have access to the course material at their own flexible schedules. Students are not required to be together at the same time. The postal correspondence, which is the oldest form of distance learning, is an asynchronous tutoring technology, such as e-mail, video and audio recordings, printed material, voice mail and fax.

These two methods can be combined in many courses offered by the Open University using periodic meetings to complete the distance learning. The Open University uses a mix of technologies and a mix of learning methods (face-to-face, distance and hybrid) all under the umbrella title “distance learning”. Distance learning can also use the interactive radio instruction (IRI), the interactive audio instruction (IAI), online virtual worlds, digital games, webinars and webcasts, which are referred to as e-Learning (Burns 2012).

The Distance e-Learning (DeL) is a combination of distance learning and e-learning characterized by the extensive use of Information and Communication Technologies (ICT) in the delivery of education and teaching and the use of synchronous and asynchronous online communication in an interactive learning environment or virtual communities, instead of a physical classroom to bridge the gap of time or space limitations. The Distance e-Learning combines the advantages and benefits of distance learning and e-learning. The focus is shifted in the practice of education in the form of a virtual community of students that is sustainable over time (Garrison 2011).

The model of distance learning has been traditionally focused on providing content or in the correspondence with emphasis on independent learning. The Distance e-Learning is also different from the e-learning, since it goes beyond the use of ICT as tools for accessing information which characterizes primarily the use of e-learning in the classroom or in the environment of the house.

One of the most important issues raised in the correspondence model in distance learning is the transactional distance. Transactional distance results from the lack of proper communication between the student and the instructor. This gap increases when there is no communication between students and teachers and has a direct impact on the learning process and the future efforts in distance learning. The more frequent use of face-to-face courses, the increased use of ICT, including videoconferencing and the Internet, have been designed to bridge this gap of transactional distance. The increase in the use of ICT and particularly the Internet has altered the design and delivery of the courses in ways that never before existed in the dominant model of distance learning and traditional learning. The combination of distance learning and e-learning marked a new strategy in the provision of educational materials for academic programs and other learning resources that were developed by the Open Universities and the conventional educational institutions (Soekartawi and Librero 2002).

Teleconferencing is used many times in distance learning, both synchronous and asynchronous. In the first case it is used mainly during basic counseling meetings, where the instructor clarifies difficult concepts to learners, informs them about their assignments or projects etc. In the second case, the asynchronous teleconferencing, a forum is created in which teachers and students exchange opinions, express queries, and make comments or questions. Teleconferencing enables instructors and students to interact and feel that they belong to a group and that they are not alone in the program.

Moodle is one of the most common asynchronous distance learning applications, which enables the interaction between participants and the creation of a collaborative learning environment. The ease of use, combined with its free distribution and response to the special educational needs of learners, makes Moodle an application that offers significant assistance in the organization of the learning courses.

Moodle is a Learning Course Management System (LCMS), and is an open source software application distributed under the terms of the General Public License (GNU). Moodle is installed in over 200 countries and there is support for 75 languages, including Greek. So far, Moodle has more than 200,000 registered users and is used in more than 1800 institutions worldwide. Among the institutions that use the Moodle platform are the MIT, the Yale and other universities in America and Europe. Moodle is one of the most widespread platforms that support Systems and Course Management Classes.

In the future, Moodle aims to provide a pleasing and technologically advanced learning environment in which the interaction that the environment provides to the learner with the ability to control the correct answer, allows learners to self-control the degree of acquiring knowledge. Also, through discussion groups, the learners express their opinions and communicate with fellow learners on issues related to the module.

The design and development of Moodle is driven by the learning theory of social constructivism and the practice of teaching and learning. The Moodle can be used and is used to support a range of other educational and andragogical approaches. The core of the Moodle is the courses that contain activities and resources. There

are about 20 different types of activities available (forums, glossaries, wikis, reports, quizzes, MCQs, SCROM players, databases etc.) and each of them can be customized enough. The main force of the social constructivism model is that each activity can utilize the results of the previous.

There are a number of other tools that make it easier to build communities of learners, including blogs, messaging, list of participants etc., and useful tools like grading, reports, combination with other systems etc. Many of the activities in the Moodle are designed to enable students to control the shared content, such as forums, wikis, glossaries, databases, messages etc. This encourages them to share their experiences. Also the Moodle has a wide range of ways in which people can develop representations of their knowledge and share them (Brandl 2005).

The course forum is the core, providing rooms for discussion and exchange of media and documents (using attachments or simple links). The wikis promote teamwork and other negotiations. Databases allow participants to access various files, e.g. a collection of digital photos or a library of reports. The page of the participants is the main place where the students can see their entire progress. The online user block is the best way to see the people in the platform at any given time (Bower and Wittmann 2009).

The recent activity block displays a great deal of information about what has happened recently, and through links, the students can view reports in more detail. There were changes made in the forums, the submission of assignments, the quiz attempts etc. Students cannot see the results of others in the same assignment, but they get an idea of what one has submitted (Brandl 2005).

Specifically, the user management in Moodle is based on the automation of many processes so that the role of the administrator is minimized. Maintaining the system security is backed by a wide range of access control mechanisms (authentication) using authentication modules. The accounts can be created by learners and their e-mail addresses are verified with confirmation (Cole and Foster 2007). The access control can be implemented using an LDAP server. The TLS protocol and the SSL certificates are supported. Each user can have a single account and a password for the entire system and their access can be restricted by the administrator in some parts of the system (Rice and William 2006).

Also the administrator can, among others, control the creation of courses and also create accounts for teachers. The role of the creator of the course is certainly not exclusive to the user but can be assigned by an administrator to other users. Teachers who can teach may not have the right to modify a course (e.g. visiting professors). There is potential for greater security, since the teachers appoint a key to attend the course, which they deliver personally to learners or via e-mail. Also students can enroll in this course manually by an administrator. They can also be deleted by the course participants. In addition, the students may be automatically deleted after a time period specified by the administrator, when there is no student activity (Dougiamas and Taylor 2002).

Learners are encouraged to provide key personal information, including personal photo and a brief description. Their email addresses can be hidden. Each learner can have personal settings such as local time zone or to choose their own language of

the environment. A teacher of a course fully controls all of the course settings, and may restrict access even to other teachers. First, the course form is selected, which can be weekly, thematic or social based on discussions. There are several activities that can be incorporated at any point like forums, resources, quizzes, questionnaires, assignments, discussions and workshops. The recent changes since the last login of the user that appear on the home page give a sense of community (Nunes et al. 2015).

The sections for writing texts are equipped with a built-in HTML editor. All the results of the evaluations are shown on a page and can be exported to a spreadsheet file. The activity of the learners is recorded in logs and reports are presented with graphics and details for access to each module and a detailed history that describes the participation of a student in the course. The system has a built-in messaging feature. Teachers can define their own assignment evaluation scales. The entire course can be stored in a compressed file by using the backup operation and transferred to another Moodle system (Cole and Foster 2007). This research aims to highlight how the Moodle helps online distance learning of specific university courses, to investigate any problems and then propose improvement measures for qualitative learning.

2 Methodology

The research methodology was based on the collection of primary and secondary data. The secondary data were collected through books, articles in journals and through official websites. The primary data were collected by conducting a quantitative research using questionnaire as main tool. The results highlight: (a) how the Moodle helps the online distance learning in specific universities, (b) to investigate any problems and (c) to make recommendations with improvement measures for a more qualitative learning.

2.1 Sample

A convenience sample of 112 people was selected, consisting of undergraduates and postgraduates from the Piraeus University of Applied Sciences, the Hellenic Open University and the TEI of Epirus. The proportion of men and women in the sample was 57.1% and 42.9% respectively. In addition, 22.3% were aged 31–35 years old, 21.4% over 46 years old, 17.9% from 26 to 30 years old, 14.3% from 36 to 40 years old, 12.5% from 18 to 21 years old, 5.4% from 22 to 25 years and the remaining 6.3% from 41 to 45 years old. Finally, 32.1% were graduates of colleges, 33% were university graduates, 18.8% had a master's degree, 12.5% were high school graduates and 3.6% were holders of a PhD.

2.2 Statistical Analysis

In this research descriptive statistics were used to capture the demographic characteristics and the answers given by respondents. The statistical program SPSS was used to perform the statistical analysis of the data.

2.3 Results

This section presents descriptively the answers given by the respondents using frequencies and percentages.

According to Table 1, 89.3% of students agreed that through the Moodle they can access its contents, 84.9% stated that they can freely browse the contents of the Moodle and use it without someone having to explain to them how it works, 83.9% stated that the Moodle has many advantages for their learning, 76.4% mentioned

Table 1 General views on the Moodle

	Totally disagree		Disagree		Neither agree nor disagree		Agree		Totally agree	
	N	%	N	%	N	%	N	%	N	%
The Moodle improves my academic performance	0	0.0	2	1.8	44	40.0	17	15.5	47	42.7
Overall, the Moodle offers many advantages for my learning	0	0.0	0	0.0	18	16.1	57	50.9	37	33.0
I can access its contents	2	1.8	2	1.8	8	7.1	20	17.9	80	71.4
I can freely browse the contents of the Moodle	0	0.0	4	3.6	13	11.6	19	17.0	76	67.9
I can use the Moodle without the need for someone to explain to me how it works	0	0.0	0	0.0	18	16.1	24	21.4	70	62.5
I can solve the problems arising in connection with the Moodle	0	0.0	0	0.0	26	23.6	23	20.9	61	55.5
I can use the Moodle if there are textbooks available	6	5.4	4	3.6	22	19.6	28	25.0	52	46.4
Learning how to use the Moodle is easy for me	9	8.0	0	0.0	24	21.4	29	25.9	50	44.6
It is easy to get material from the Moodle	6	5.4	8	7.1	14	12.5	39	34.8	45	40.2
Learning how to use the Moodle is fun	12	10.7	2	1.8	26	23.2	29	25.9	43	38.4
Using the Moodle is an attractive way of learning	2	1.8	6	5.5	41	37.3	18	16.4	43	39.1
Overall, I like to use the Moodle	6	5.4	2	1.8	35	31.3	25	22.3	44	39.3

that they can solve the problems arising when using the Moodle, 75% said that it is easy to get material from the Moodle, 71.4% answered that they can use the Moodle if there are textbooks available, 70.5% felt that learning the use of the Moodle is easy, 64.3% reported that learning to use the Moodle is a fun process, 61.6% reported that they like to use the Moodle, 58.2% said that the Moodle improves their academic performance and 55.5% reported that the use of the Moodle is an attractive way of learning.

Generally, it can be observed by the answers that the students can manage, at a very good extent, the use of the Moodle in their favor. According to their views, it is an easy tool to be used that helps them in their academic life and increases their performance. However, some students training or available textbooks may be needed to facilitate even more the use of the Moodle, perhaps for students who are not so familiar with such technology.

According to Table 2, 60.8% of students reported that the Moodle helps at least enough with their contact with the teacher, and generally facilitates communication, while 57.1% reported that it facilitates the course with its useful multimedia, and 50% reported that it helps them to advance in the study of the following chapters. Also, 48.2% reported that it helps them to study the course, 35.7% said that it helps them to understand the course and 25.7% said that it helps them as to the way the course is structured.

Based on the above response of the students, it can be concluded that the Moodle is evaluated as quite useful in terms of contact with the teacher, the study of the following chapters and the course study. Furthermore it helps some of the students to understand the course and also on how the course is structured. Therefore, in general, the Moodle is considered to be a quite useful tool in specific areas that mainly concern the study and organization of the course.

Table 2 Evaluation of the Moodle

	Very much		Enough		Neither much nor little		A little		Not at all	
	N	%	N	%	N	%	N	%	N	%
... It helps as to the way the course is structured	2	1.8	26	23.9	36	33.0	10	9.2	35	32.1
... It helps to study the course	2	1.8	52	46.4	44	39.3	4	3.6	10	8.9
... It helps to understand the course	2	1.8	38	33.9	46	41.1	14	12.5	12	10.7
... It helps to move on to the study of the subsequent chapters	24	21.4	32	28.6	40	35.7	4	3.6	12	10.7
... It helps with my contact with the teacher, facilitates communication	21	18.8	47	42.0	32	28.6	10	8.9	2	1.8
... It facilitates the course with useful multimedia (videos, etc.)	27	24.1	37	33.0	38	33.9	4	3.6	6	5.4

Table 3 Differences in the evaluation of the Moodle between men and women

	Gender				U	P
	Male		Female			
	M	SD	M	SD		
... It helps as to the way the course is structured	3.72	1.31	3.13	1.02	1078.000	0.014*
... It helps to study the course	2.78	0.93	2.63	0.91	1324.000	0.173
... It helps to understand the course	3.13	1.03	2.75	0.89	1180.000	0.026*
... It helps to move on to the study of the subsequent chapters	2.72	1.13	2.29	1.22	1204.000	0.042*
... It helps with my contact with the teacher, facilitates communication	2.45	1.02	2.17	0.81	1318.000	0.176
... It facilitates the course with useful multi-media (videos, etc.)	2.30	0.97	2.38	1.16	1528.000	0.961

Note:* $p < 0.05$, M mean value, SD standard deviation, U Mann Whitney value, 1 Very much, 5 Not at all

According to Table 3 and the Mann Whitney test, women evaluate the Moodle higher than men in that it helps them in the way the course is structured ($p = 0.014$), in understanding the course ($p = 0.026$) and to proceed to the study of the next chapters ($p = 0.042$).

3 Conclusions

The above analysis showed that the vast majority of students agreed that through the Moodle they can access the contents and browse freely, and use it without having someone to explain to them how it works and that they can resolve any problems arising. From the above, it is concluded that the Moodle is generally an easy platform to use, for students who do not require specialized knowledge to use it. Also, they considered that the Moodle has many advantages for their learning as it is easy to acquire material from the Moodle and as reported they can use the Moodle if there are textbooks available. Therefore the Moodle is an effective learning platform for distance learning. The ease of using this platform in the distance learning programs is an important factor that encourages students and also in the continuation of their studies.

Also, students argued that learning the use of Moodle is easy for them, and find it a fun process. They also said that they like to use the Moodle; it improves their academic performance and consider the use of the Moodle an attractive way of learning. Based on the above it is concluded that the surveyed students prefer the Moodle platform, which they find it easy and fun. In addition, regarding the evaluation of the Moodle, it was found that the majority of students indicate that the Moodle helps at least enough in their contact with the teacher, namely that it

facilitates communication, it facilitates the course with useful multimedia, helps them to advance to the study of the next chapters and generally to study the course. Finally, one third of the students reported that it helps them to understand the course and one fifth claimed that it helps them as to the way the course is structured.

From the above, it is concluded that while the Moodle platform is considered easy and fun, it is not effective enough in terms of the learning process since the students are not completely satisfied with the communication with their teachers, the multimedia used and the suggested study. It is significant that only some respondents are happy with the understanding of the course offered by the platform, and from the structure of the course.

Finally, it was found that women evaluate the Moodle higher than men, in that it helps them in the understanding of the course, the way the course is structured and finally to proceed to the study of the next lesson. The above finding is perhaps surprising in that most research studies (Miller et al. 1996; Pryor 1994; Cassell and Jenkins 1998) relating to the attitude of the two genders towards ICT shows that men have a more positive attitude because of their higher familiarity with ICT. Obviously this does not apply for the Moodle platform, which women find it easily accessible and functional. However, further research can indulge in this issue, since this sample was a sample of convenience and therefore may not be representative for the generalization of the results.

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Transatlantic Trade and Investment Partnership (TTIP) Essay Writing Competition: Case Study for Exploring Writing Skills Issues in English for Specific Purposes (ESP)

Ankica Knezović

Abstract In the digital era and the twenty-first century labor market context, more and more emphasis is placed on the prospective employees' transversal or transferable skills, which are not limited to a specific academic discipline or knowledge area but are applicable to many occupations and professional environments. In this context, the importance of effective written communication in a foreign language has been recognized by many employers, which is a foreign language skill that requires systematic development and more detailed assessment. The aim of this paper is to explore the main dilemmas surrounding the writing skills issues in ESP, with particular emphasis on English for Academic Purposes (EAP), as observed and analyzed in an essay writing competition featuring the topic of TTIP agreement, which was organized by the Faculty of Economics and Business in Zagreb, the British Embassy in Zagreb and the Student Association eStudent in November, 2015. 131 students from 34 higher education institutions in Croatia entered the competition, while 41 qualified for the online essay writing and 23 submitted their full essays. The essays have served as a discourse analysis and a case study taking into consideration the following criteria: task achievement, academic relevance and referencing, professional and practical relevance, cohesion and organization of the text, standard of English and completeness of the work. In addition to the aforementioned categories, a range of frequently highlighted transferable skills such as critical thinking skills, research and investigation skills, information and media literacy skills, personal and social responsibility as well as global awareness are also examined in this context. The Assessment Committee consisted of members of the Department of Business Foreign Languages, the Department of Organization and Management, the Department of Trade and officials from the British Embassy in Zagreb, whose assessment criteria are compared to the observations based on practical teaching experience in ESP classes and the relevant sources that have been used in this research. The findings cannot generate answers to the dilemmas

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presented in this paper but can suggest ways of improving students' writing skills and academic competence, which might in the long run ensure their future employability as well.

Keywords Writing skills issues • Transferable skills • EAP • Case study • Discourse analysis • Assessment criteria

1 Introduction

In the film *Words and Pictures* (Schepisi 2013), Jack Marcus, a disillusioned preparatory school teacher and a writer, cannot hide his frustration with his students in an advanced writing class and their complete lack of imagination and ambition in their written work, so his instructions for another writing assignment are not quite pedagogical when he tells them to write just one sentence that elevates human kind, with one image fresh-baked from the ovens of their computer-deadened, shopping malls suffocated minds. This idea that different forms of computer-mediated communication in the twenty-first century inevitably lead to deterioration in linguistic competence has also been recognized as one of the areas of public concern by acclaimed linguists such as Crystal (2005). Ganobcsik-Williams (2004) reveals the same preoccupations about the literacy crisis in the UK and the widespread concern about the continuous decline in students' proficiency in writing skills, as viewed by the general public, government agencies, employers as well as university staff. The main areas of criticism focus on students' inability to express themselves clearly, accurately and articulately, their limited range of vocabulary and syntax, poor use of referencing and citation, and their poor familiarity with the demands of academic discourse community and different types of discipline-specific genres.

Taking into consideration the continuous dominance of English as the global language in the academic and professional context, non-native speaker students as well as working professionals face additional challenges in overcoming the aforementioned deficiencies in writing skills since their first language literacy, foreign language proficiency, as well as educational and cultural background are not the same as those of native speakers of English. The same issues have been addressed by Harmer (2001, pp. 249–259) who states that there are a number of reasons why students find language production difficult: students do not possess sufficient knowledge of the language to perform a particular writing task; they are not used to writing spontaneously; and they are often unfamiliar with the topic or the genre. Furthermore, different writing conventions are frequently not transferable from one community or language to another. Another potential problem might arise from the fact that the writing conventions and the characteristics of good writing are not universal and may vary from discipline to discipline. In the humanities and social sciences, for example, analyzing and synthesizing multiple sources is important, while in science and technology, activity-based skills such as describing procedures

and planning solutions are required (Hyland 2009 cited in Hyland 2013, p. 106). Given the context of ESP and EAP the goal of which, as opposed to English for General Purposes (EGP), is not only to develop students' linguistic competence but also academic skills and communicative competence, the efficient development of writing skills poses even more challenges.

On the other hand, in spite of the continuously declining levels of proficiency in students' writing skills, the increasing significance of effective written communication in the contemporary educational and professional context is frequently emphasized in the scholarly work on the subject. Hyland (2013, p. 95) recognizes the same idea by stating that "writing is perhaps the central activity of institutions. Complex social activities like educating students, keeping records, engaging with customers, selling products, demonstrating learning and disseminating ideas largely depend on it. Not only is it hard to imagine modern academic and corporate life without essays, commercial letters, emails, medical reports and minutes of meetings, but writing is also a key feature of every student's experience". He also dismisses the previously mentioned argument that information and communications technology (ICT) negatively affects the development of students' writing skills in the contemporary digital era by saying that "multimedia and electronic technologies are beginning to influence learning and how we assess it, but in many domains conventional writing remains the way in which students both consolidate their learning and demonstrate their understanding of their subjects" (Hyland 2013, p. 95). The idea that writing skills are valuable lifelong skills, whose permanent and universal features transcend time and technological changes, is clearly articulated here.

There are several reasons why writing skills are indispensable in the academic context and should not only be taught in ESP courses but also in disciplinary courses. Firstly, communication skills (verbal and written) are often mentioned in the context of "transferable or transversal skills that are not limited to any academic discipline or knowledge area but are interdisciplinary abilities that are transferable to many occupations and professional contexts, and are necessary for the students' future employability, adaptability, and occupational mobility" (Knezović 2016, p. 123). Secondly, academic writing as well as writing for professional purposes can serve as a springboard for developing a range of higher order cognitive skills and additional competences that can help students participate effectively in their academic discourse community and work-related context. Such skills and competences may include analytical and critical thinking skills, problem-solving skills, ICT skills, information and media literacy skills, visual and graphic literacy, time management skills, research and investigation skills, citation and referencing skills, teamwork and collaboration skills, as well as negotiation skills. Characteristics and abilities like decision making, creativity and innovation, gathering, selecting and abstracting information, summarizing, interpreting and paraphrasing information from different sources, effective argumentation and reasoning, personal and social responsibility as well as global awareness may also be included in the

aforementioned category. Lastly, the fact that students become more actively engaged in the learning process through in-class writing activities, thus promoting learner-centered approach as opposed to passive participation in their education, has been suggested as another argument for incorporating writing instruction across the curriculum. What is more, O'Farrell (2005) suggests that students' general motivation for learning and interest in the subject of their study increases dramatically if they are frequently required to write about that subject.

Most recent research on the subject (Knezović 2016) is a further practical proof in support of the relevance of writing skills in the academic and work-related context, since both Languages for Specific Purposes (LSP) teachers as well as working professionals placed high importance on different types of writing for professional purposes such as business correspondence, reports, memos, minutes, summary writing, and graph description. More specifically, working professionals reported that written communication was precisely the target situation in which they most frequently used a foreign language in everyday professional setting, while LSP teachers agreed that writing for professional purposes in the LSP classroom significantly contributed towards the development of students' foreign language proficiency and communicative competences relevant in the working environment. The fact that both of them gave very low ranking to academic writing clearly suggests that writing for occupational purposes is given more prominence than writing for academic purposes in the LSP syllabus, which is expected given its practical purpose in the workplace. However, writing for academic purposes should by no means be ignored in the LSP syllabus since it develops the skills that are transferable from the foreign language courses to the students' core courses, and contribute towards the development of students' overall academic competence.

For all the previously mentioned reasons, many scholars emphasize the importance of integrating writing instruction across the curriculum, and not only in ESP and EAP courses. It is suggested that by combining reading and learning from texts with writing activities, learners can achieve a more profound understanding of the subject they are studying than through either process alone (McGinley and Tierney 1989). O'Farrell (2005) also advocates integrating writing instruction in content disciplines since it can be used as a platform for students to demonstrate and apply the specialist knowledge they have acquired in their disciplinary courses. On the other hand, she suggests that specialist knowledge and competence do not necessarily guarantee good written communication skills, if not combined with a certain level of universal academic literacy. Thus, both discipline specific knowledge and academic discourse knowledge are necessary for successful academic writing. Given the importance of effective written communication in the contemporary academic and work-related context, it is clear that effective development of students' writing skills and general academic literacy have to be given more prominence in the ESP syllabus as well as disciplinary courses, but these issues will be given more consideration in the subsequent sections.

2 The Role of Writing Skills in ESP

2.1 *ESP Concepts and Literacy Skills*

Before analyzing the importance of written communication within the broader context of ESP, it is useful to reflect back on the theoretical background of the subject in question. Most definitions describe ESP as the teaching of specific kind of English to learners who will use it in a particular professional setting, which could be occupational, academic or scientific, thus emphasizing its pragmatic purpose and specialization in language learning. Dudley-Evans and St John (1998) elaborate the features of ESP courses by suggesting that they focus on discipline-specific language (grammar, lexis, and register), skills, discourse and genres as well as the specific needs of the learner, use a different methodology from that of general English, and are generally designed for intermediate or advanced students at a tertiary level institution or in a professional work situation. While all four language skills: listening, reading, writing and speaking, are given equal attention in EGP courses, ESP does not only focus on developing students grammatical competence, but more importantly on developing students' communicative competence, which is the ability to use a language for a range of different communicative purposes and functions in specific occupational or educational settings (Richards 2006). In addition, the subject matter is combined with language teaching, which means that students learn a foreign language in a context that is directly connected with their special field of study, which fosters communicative language teaching and contextualized learning. Hutchinson and Waters' (1987) idea that learner-centered and learning-centered approaches help students to utilize their linguistic and communicative competence more efficiently in their academic as well as professional context suitably complements the aforementioned theories. However, given the context of ESP classroom, especially at tertiary level, it has to be said that some of those theories are not entirely feasible in everyday teaching practice. Dudley-Evans and St John's (1998) idea that ESP courses are generally designed for intermediate or advanced level students assumes that most ESP classes are homogeneous, which is not always possible considering the fact that students enter university with diverse levels of foreign language proficiency and secondary education background. In addition, ESP classes at higher education institutions with a large number of students may not always enable teachers to implement learner-centered and learning-centered approaches in their teaching, as suggested by Hutchinson and Waters (1987). The systematic instruction and time-consuming assessment of writing skills, combined with the previously mentioned reasons, make it difficult for teachers to provide students with enough opportunities for acquiring good writing skills and giving detailed feedback on their written work. Since it has already been mentioned that working professionals recognize the significance of written communication in their everyday professional setting, the needs analysis, as the most reliable methodology for identifying students' needs, should also take into

consideration the needs and requirements of their future employers, rethinking the role of writing skills instruction in the ESP syllabus.

When thinking about the specific role of writing skills in the context of ESP, Hyland (2002) identifies concepts such as genre, authenticity, discourse community, communicative purpose, and audience as key concepts, which are frequently discussed in the relevant literature (Leki and Carson 1997; Dudley-Evans and St John 1998; Harwood and Hadley 2004; Zhu 2004; O'Farrell 2005; Hu 2007). That being said, ESP concepts of writing do not simply focus on teaching general rules of writing and linguistic accuracy but they aim to help students develop new kinds of literacy and competence in particular genres so as to enable them to participate effectively in academic and professional discourse communities and understand the cognitive, social and linguistic demands as well as communicative conventions of specific professions and disciplines. The recurring dilemma, which revolves around the question whether literacy skills appropriate to the purposes and conventions of particular discourse communities are universal and transferable across a range of disciplines, professions and purposes, is discussed in more detail by Hyland (2002). He advocates ESP's focus on specialized and purpose-related language learning, which is supported by most ESP definitions that emphasize the idea of specificity as opposed to the generic goals of EGP. On the other hand, Hutchinson and Waters (1987, pp. 165–166), express opposing views by suggesting that there are “insufficient variations in the grammar, functions or discourse structures of different disciplines to justify a subject-specific approach”. What is more, it has to be acknowledged that many subject specialists appear to believe that academic discourse conventions are largely self-evident and universal (Lea and Street 1999 cited in Hyland 2002, p. 388) and are often content to simply assign grades to products without worrying too much how the product was arrived at (Braine 1988 cited in Hyland 2002, p. 388), which is the case in everyday teaching practice at tertiary level since students often report that subject teachers place less emphasis on detailed feedback and evaluation of their written work than ESP teachers.

The assumption that students come to their university studies with a deficit of literacy skills may reduce the role of ESP to a service activity that is supposed to improve students' deficit of literacy skills in the academic context, and has been recognized as another debatable issue relating to the generic or discipline-specific goals of ESP courses (Leki and Carson 1997). The idea that students with lower level of general language proficiency cannot master specific, more complicated features of language raises similar questions. Hyland's concept of authenticity in ESP is perceived as another obstacle for students with poor general linguistic competence since “authentic material is language where no concessions are made to foreign speakers, and which is precisely the non-simplified language that students will encounter if they come into contact with target-language speakers.” (Harmer 2001, p. 205). In this context, Dudley-Evans and St John (1998) add that students' poor grammatical competence in a foreign language is often ignored as a possible obstacle for successful reading comprehension.

Another frequently mentioned argument against the specificity of ESP coincides with Spack's (1988, p. 29) much discussed view that the teaching of writing

conventions in different disciplines should be left to subject specialists, while the language teachers should focus instead on “general principles of inquiry and rhetoric”. Hyland (2002) counters this argument by suggesting that language teachers lack the expertise to teach subject specific conventions while subject teachers lack both the expertise and the desire to teach literacy skills, which we have seen are of tremendous importance for students’ academic and professional careers. Having considered two sides of the same coin, and relying on considerable experience in teaching ESP and EAP courses, I would argue that discipline-specific and universal academic view of literacy are not mutually exclusive. General linguistic and academic literacy certainly comprise skills and competences that are universally applicable and transferable across disciplines and professional settings, which does not automatically imply the frequently mentioned misconception that they guarantee effective communication in specific academic and professional contexts. On the other hand, the same cannot be guaranteed by focusing exclusively on the ability to master discipline-specific knowledge. Only if we combine the acquisition of general academic literacy with the acquisition of specialist disciplinary knowledge, can we achieve the aforementioned goals.

2.2 EAP Concepts and Literacy Skills

Naturally, the aim of English for academic purposes, as the narrower field of ESP, is concerned with researching and teaching of English needed by those who use language to perform academic tasks, which has over the last two decades increased enormously in importance, driven by the global growth in the use of English for employment, as well as academic research (Charles 2013). Apart from challenges students have to face when writing for academic purposes in a second language, their prior writing experiences simply do not prepare them for the literacy expectations of their university or professional workplace. “Their trusted ways of writing are no longer valued or legitimate for making meaning in these new institutional contexts and they find the greater formality, impersonality, nominalization and incongruence of these discourses mysterious and alien” (Lillis, 2001, cited in Hyland 2013, p. 96). This suggests that students’ general linguistic literacy and foreign language proficiency do not automatically assume their academic writing competence, which “comprises the attitudes, knowledge, skills, and strategies that enable one to produce writing that satisfies the expectations of the academic discourse community” (Campbell 1998 cited in Hu 2007), so the goal of EAP is to help students develop that competence. It has to be said that the above-mentioned goals are not always easy to achieve at higher education institutions considering the fact that academic writing instruction is frequently given secondary role in discipline-specific courses due to time limitations for incorporating writing activities in the regular content-focused curriculum, while EAP courses are equally constrained by their overall inclusion in the university curriculum. That is why these are the issues that should be given more attention in the syllabus design,

particularly by subject specialists who should try to incorporate academic writing instruction into their course content.

Many scholars like Hyland and Hamp-Lyons (2002) emphasize the importance of teaching different types of genres, both in English for professional purposes, as well as in English for academic purposes, highlighting the variedness of academic discourse, which is neither monolithic nor homogeneous (Harwood and Hadley 2004). Dudley-Evans and St John (1998, p. 115) also recognize the importance of genre by claiming that “knowledge of genre is a key element in all communication and especially significant in writing academic or professional texts”. When students are expected to produce specific writing genres, they become aware of the distinguishing features of different text types, which can help learners build a repertoire of rhetorical conventions and the relevant lexis characteristic of various genres. It can also make students aware of the socio-linguistic role that texts play in particular discourse communities, which are defined as the “group(s) of individuals bound by a common interest who communicate through approved channels and whose discourse is regulated” (Porter 1986, pp. 38–39). A question that arises naturally is whether academic writing courses should have interdisciplinary or discipline-specific focus. Hyland’s (2002) argument for ESP’s specificity is pragmatically supported by the variety of academic and discipline-specific writing tasks that students have to do at university. Zhu (2004) makes a clear distinction between generic EAP genres (article, book report/critique, reflection paper, and library research paper), and discipline-specific ESP genres, in particular business genres (case analysis, business report, business proposal, design report, business letter and memo), by identifying their different goals, learning outcomes, target audience and communication strategies, which are all oriented towards socializing students into the business world rather than writing exclusively for an academic discourse community. He therefore emphasizes the importance of writing task analysis, which aims at identifying, describing, and contextualizing the genres that students are expected to perform in different discourse communities. Taking into account a diverse repertoire of academic and discipline-specific genres, Hyland’s (2002) dilemmas are revisited: Are some predominantly used academic genres, such as essay, transferable across academic disciplines, discipline-specific courses and work-related contexts? Should disciplinary formats be taught by English teachers in EAP classes or should they be taught by subject specialists through various disciplines? ESP and EAP courses taught at the Faculty of Economics and Business in Zagreb employ most of the academic and professional writing genres mentioned above, while I would definitely agree with O’Farrell’s (2005) claim that different types of essay are still the most predominantly used genre across academic disciplines. As for the second question, a stronger cooperation between language departments and the departments that teach content courses would be advisable so as to coordinate more appropriately the repertoire of writing assignments, assessment criteria and the academic writing instruction.

Leki and Carson (1997, p. 62) use the concept of “text-responsible writing” to highlight the importance of using source texts, which is precisely what differentiates academic writing from the writing in courses of English for general purposes,

since it promotes linguistic and intellectual growth, as opposed to “writing without responsibility for the content of a source text, writing that is typical of *belles-lettres* prose, the genre privileged in writing classes but not produced for other academic writing contexts”. They also suggest that undergraduate and graduate students do not have the same approach to using source texts to complement their writing assignments. Undergraduate students found the text-responsible writing facilitating since it compensated for their lack of originality and invention in writing, as well as their lack of knowledge about the subject matter, discipline-specific vocabulary, different genres and language-based rhetorical forms, particularly when writing for disciplinary courses. On the other hand, graduate students, who are already more confident about their disciplinary knowledge background, are reported to feel that text-responsible writing provided support for their own ideas, while at the same time it increased their concerns about additional linguistic requirements to paraphrase language from discipline-specific texts in order to avoid intentional or unintentional plagiarism.

Hu (2007, p. 70) proposes a very structured and systematic approach to EAP writing instruction that synthesizes the main EAP objectives highlighted in this section, which are based on the principles of metacognition, knowledge, skills, and strategies. The dimension of metacognition refers to academic writing as a “meaning-making (knowledge-transforming) process rather than knowledge-telling process (merely the externalization of what is already known)”. The knowledge dimension focuses on rhetorical features of different text types (genres) frequently encountered across the disciplines. The skills dimension involves a set of skills that the students are expected to develop in relation to the process and product of writing, while the dimension of strategies concerns the procedures included in different stages of an academic writing task. It has to be said that these principles can only be employed more consistently in EAP classes, which usually have a smaller number of graduate students who are generally more motivated to perfect their academic writing competence and are already more confident about their disciplinary knowledge.

3 Critical Issues in the Development of Writing Skills

Having discussed the most important concepts and objectives of ESP and EAP related to the writing skills instruction in the previous section, this section will focus on obstacles that may arise in that process. Kavaliauskienė and Kaminskienė (2009) emphasize a close interdependence between the development of academic reading competence and the acquisition of academic writing competence. Metacognitive strategies and skills that are employed in reading-to-write tasks such as reading comprehension, selecting and effectively summarizing of the main points from the source texts, as well as analyzing and critically evaluating relevant information are examples in support of this claim. They also highlight potential difficulties in the efficient development of reading and writing skills in ESP and EAP courses, which

stem from the idea that problems with the acquisition of literacy in the second language are connected with the acquisition of literacy in the first language, related to “the fundamental psycholinguistic issue of transfer of the abilities that enable L2 learners to utilize knowledge from one language in acquiring literacy in another” (Carson 1994, cited in Kavaliauskienė and Kaminskienė 2009). Moreover, expository texts in reading-to-write tasks quite frequently combine sophisticated language structures, specialized vocabulary and a range of new concepts, all of which does not facilitate overcoming the aforementioned difficulties.

They further suggest that the development of writing skills, and I would add academic writing in particular, requires more time-consuming and structured approach than other language skills, since it involves planning, drafting and revising which also requires more concentration and attention to detail. Dudley-Evans and St John (1998, p. 119) share similar views by saying that “writing is a difficult and tiring activity and usually needs time for reflection and revision, plus a peaceful environment, none of which are generally available in the classroom”. When comparing the productive skill of writing to the productive skill of speaking, Kavaliauskienė and Kaminskienė (2009) also place emphasis on cohesion and coherence as the features that have to be given more attention to, and are more visible in writing than in speaking. They highlight poor organization, lengthy sentences and words, inadequate content, poor page layout, repetition, plagiarism, narrow range of vocabulary, lack of structure and various grammatical mistakes as the most common writing problems.

The problem of inconsistency in the assessment criteria has been recognized by many scholars like Harwood and Hadley (2004), which is frequently attributed to different concepts and individual preferences about what makes good academic writing in the academy, which vary from discipline to discipline, from department to department, and even from lecturer to lecturer. The fact that the emphasis in EAP courses is on linguistic and rhetorical forms more than on the display of content knowledge, whereas the emphasis is reversed in discipline-specific courses has been noticed by many scholars (Leki and Carson 1997). The issue of the frequently mentioned transferability of writing genres and rhetorical conventions from EAP courses to discipline-specific courses reappears in this context, in other words whether the rhetorical conventions and textual preferences of generic genres, most often different types of essay, match the requirements of disciplinary courses. Leki and Carson (1994, p. 62) completely support the idea of transferability by suggesting that “no matter what content students write about and what genre they practice in writing classes, they will absorb some sort of underlying academic writing skill and transfer it to their writing for other classes”. Even though most informally interviewed students at the Faculty of Economics and Business in Zagreb feel that EAP writing courses help them accomplish their writing assignments in disciplinary courses, a question about the real purpose of EAP courses reappears, as to whether they should merely prepare students for the academic requirements of their core courses.

Another major area of concern revolves around the impact of ICT on the development of writing skills in the digital era when a range of new literacies in the twenty-first century, such as computer literacy, or information and media

literacy, are supposed to complement the students' traditional language skills in their academic and future professional careers. However, it is noticeable that students' level of computer literacy frequently does not match their levels of linguistic and information literacy. With almost unlimited abundance of information on the Internet, today's students do not have difficulty accessing information, but selecting, processing and critically evaluating information. Thus, providing guidance in using the Internet as source for academic research, by assisting students in finding relevant information as well as quoting reliable and appropriate sources is of crucial importance in ESP, and particularly EAP. The students' exposure to the language on the Internet has also raised concerns about the influence of online written discourse on their writing competence, which has been described by Warschauer (2007, p. 913) as "informal, graphic (rather than text) dominant, and facilitating plagiarism". With reference to the development of students' writing skills, Prensky (2012) goes even further by claiming that traditional writing formats such as letters, essays and reports are already becoming obsolete and are therefore being replaced by emails, blogs and Power Point presentations, which will be replaced by more sophisticated digital and multimedia formats in the future.

The use of the Internet and computer-mediated communication has also proven to aggravate the persisting problem of plagiarism in students' written work, as suggested by Warschauer (2007, p. 914) who asserts that "there is little doubt that the rapid diffusion and growth of the Internet facilitates students' plagiarism by making available millions of texts around the world for easy cutting and pasting", and often perceived by students as more easily available for everyone's free and unauthorized use than books or other printed formats. Recent research (Knezović et al. 2012) confirmed students' low awareness of this problem, thus proving the Internet to be an excellent platform for their almost unobstructed plagiarism, as well as a time-consuming tool used mainly for social and entertainment purposes rather than educational and academic ones. The twenty-first century plagiarism is characterized by the students' uncritical readiness to use unprocessed material from the Internet, which ultimately affects their creativity and originality, the quality and authenticity of their written work as well as their academic integrity. The title of the magazine article "Is Google Making Us Stupid?", implying that digital media such as the Internet make our minds lazier and less capable of processing cognitively demanding tasks (Carr 2008), clearly supports the arguments mentioned above.

Crystal (2005) is not so pessimistic by describing the Internet language as more flexible, and unhindered by formality and standardization, which is particularly noticeable in the area of Internet writing which "broke several of the rules of formal Standard English—in such areas as punctuation, capitalization and spelling". So, instead of rigidly insisting on the traditional evaluation of writing skills, we should acknowledge the differences between nonstandard and standard English and use the informality and flexibility of the Internet language to explore the written language in more unconventional ways. That being said, the role of the teaching profession will be, according to Crystal (2005), "to teach students Standard English, as a medium of educated communication, to spot any signs of communicative inefficiency, stylistic inconsistency or conflating features belonging to different styles and to point out inappropriateness of some of the features belonging to a different medium".

4 Research Objectives and Methodology

This aim of this section is to explore the main dilemmas surrounding the writing skills issues in ESP, with particular emphasis on English for Academic Purposes (EAP), as observed and analyzed in an essay writing competition featuring the topic of TTIP agreement, which was organized by the Faculty of Economics and Business in Zagreb, the British Embassy in Zagreb and the Student Association eStudent in November, 2015. The participants in the essay writing competition, which formed the basis of the case study used in this research, were 131 undergraduate and graduate students from a range of higher education institutions in Croatia, which included universities, polytechnics and colleges of applied sciences, both private and public. More specifically, these included a range of academic fields and disciplines, as well as special fields of study: business and/or economics (48); humanities and social sciences (16); law (14); political sciences (9); science (mathematics, chemistry and geography) (7); electrical engineering (6); Croatian studies (5); management (5); tourism and communication studies (4); food technology and biotechnology (3); information technologies (3); mechanical engineering and naval architecture (2); pharmacy and biochemistry (2); veterinary medicine (1); medicine (1); textile technology (1); agriculture (1); architecture (1); dramatic arts (1); and transport and traffic sciences (1).

The essay writing competition consisted of two rounds, the first elimination round featuring a test on the subject of TTIP agreement with 12 multiple-choice questions, and the second round featuring a 1000–1500 word essay on the same subject. Both tasks were conducted online within a limited time period of 2 h, and each on a specific date and at specific time (14 November 2015, 12:00–14:00 and 21 November 2015, 12:00–14:00). Candidates were given their individual code names to ensure the standards of fairness and impartiality, and their essays were reviewed and assessed online via Google Drive platform, with each essay accompanied by five assessment grids completed by individual members of the Assessment Committee respectively. The Committee consisted of three members of the Department of Business Foreign Languages, the Department of Organization and Management and the Department of Trade, and two officials from the British Embassy in Zagreb. Before entering the first round of the competition, candidates were given a reading list with the required and supplementary literature on the subject of TTIP to prepare for the competition tasks, while additional input was provided for the contestants at the opening ceremony featuring a few short presentations and a panel discussion hosting members of the Department of Trade, Faculty of Economics and Business in Zagreb and the representatives from the Ministry of Foreign and European Affairs of the Republic of Croatia, the British Embassy in Zagreb, American Chamber of Commerce in Croatia, the British Business Centre Croatia and the European Commission Representation in Zagreb. The required reading list, as well as the assessment criteria, were defined by the Assessment Committee before the competition and presented at the opening ceremony. The official assessment criteria comprised six important segments

considered in each essay: task achievement, academic relevance and referencing, professional and practical relevance, cohesion and organization of the text, standard of English and completeness of the work, and each segment could be awarded grades ranging from 1–5. If there were cases where candidates completely failed to meet the minimum criteria of academic writing conventions, disciplinary background knowledge and standard of English, they could be disqualified by being awarded 0 grades. The final score of each essay was based on the total of all grades from the five assessment grids.

41 participants qualified for the second round of the competition which entailed essay writing, and they came from the following academic fields and disciplines: business and/or economics (18); law (6); humanities and social sciences (4); Croatian studies (3); electrical engineering (2); management (2); tourism and communication studies (2); political sciences (1); science (mathematics, chemistry and geography) (1); medicine (1); and transport and traffic sciences (1). However, only 23 of the aforementioned group of candidates submitted their full essays, and they came from the following fields and disciplines: business and/or economics (13); law (4); humanities and social sciences (2); Croatian studies (1); management (1); tourism and communication studies (1); and medicine (1).

In the first part of this case study, their essays will be analyzed in more detail in a discourse analysis taking into consideration the official assessment criteria. In addition to the standards of academic writing, a range of transferable skills, which have already been discussed in the previous sections, will be examined in this context as well. The Committee's assessment criteria will be compared through different types of comparative analysis of their respective assessment grids in the second part of this case study. The research findings will be analyzed in more detail in the subsequent section, and compared to the observations based on practical teaching experience in ESP and EAP courses at tertiary level, as well as the scholarly work on the subject that has been used in this research.

5 Case Study Findings

5.1 General Observations

The purpose of this section is to present the findings of the essay writing competition on the topic of TTIP, which was used as a case study for investigating writing skills issues discussed in the previous sections. Before relevant discourse analysis of the essays submitted in this competition, a general observation can be made with regard to the profile of the contestants who served as a representative sample of an academic discourse community of graduate and mostly undergraduate students who might be interested in this type of competition. Based on the number of candidates who entered the competition (131), it could be said that this type of challenge created reasonable interest among the student population, suggesting that some

predominantly used academic genres, such as an essay, are transferable to many disciplines and can generate interdisciplinary interest. However, even though students came from a range of diverse disciplinary backgrounds, the fact that most of them came from the academic disciplines and fields of economics and business (48), humanities and social sciences (16), law (14) and political sciences (9) is quite logical considering the essay topic, and is another practical proof in support of Hyland's (2002) idea of discipline-specific view of ESP. The fact that only 41 candidates qualified for the second round of the essay writing competition, 23 of whom submitted their full essays, poses serious dilemmas about the students' motivation for participating in this type of competition. Other than the students' complete lack of adequate preparation for this competition considering the fact that they were given required and supplementary literature before the competition, this disappointing statistics may be due to the reasons that have already been highlighted in the previous sections of this paper (Dudley-Evans and St John 1998; Kavaliauskienė and Kaminskiene 2009). More specifically, students' lack of effective metacognitive strategies and skills employed in reading-to-write tasks that frequently combine sophisticated language and specialist vocabulary, both of which require students' high level of foreign language proficiency and discipline-specific knowledge are the difficulties that re-emerged in this competition. It is interesting to notice that the distribution of participants according to their respective academic disciplines and fields of study was not the same in this part of the competition compared to their numbers at the beginning of the competition: business and economics (13); law (4); humanities and social sciences (2); Croatian studies (1); and medicine (1). It is particularly interesting to see that a single medical student that entered the competition was among the 23 students that submitted their full essays, which clearly supports the argument that general academic literacy is transferable across disciplines.

5.2 *Discourse Analysis*

The discourse analysis of the submitted essays will focus on the specific elements of the assessment criteria that have been used in this competition, such as task achievement, academic relevance and referencing, professional and practical relevance, cohesion and organization of the text, standard of English and completeness of the work.

When considering the task achievement, it can be observed that those essays that were less successful in this segment suffered from several weaknesses, the first of which was connected with being under-length (e.g. 511 words instead of 1000–1500), in other words not fulfilling the minimum word limit requirement, incompleteness by failing to provide a concluding paragraph, or in many cases by providing an appropriate title. Another problem was connected with a one-sided account of the TTIP agreement, failing to analyze it from different perspectives and narrowing the focus on medical, legal, political or philosophical dilemmas

surrounding this topic rather than its economic impact on the future of the EU and the US economy, which can be explained by the respective legal, medical and political disciplinary backgrounds of the students who wrote those essays. It has to be said that four essays were disqualified by one assessor on the basis of the aforementioned inadequacy, although one of the disqualified essays demonstrated a very high standard of English, being one of the very few essays using proper referencing devices and following the academic writing conventions. Lastly, it was also perceived that some essays were oversimplified accounts of the subject in question considering the fact that students should be aware of certain rhetorical conventions and possess the necessary disciplinary background knowledge that satisfy the expectations of the academic discourse community. This is even more visible with regard to another element of the assessment criteria, and that is academic relevance and referencing.

When it comes to academic relevance and referencing, it can be ascertained that most essays exhibit major problems in this area with appropriate use of sources as well as the style and register characteristic of academic writing. It has already been suggested (Crystal 2005; Warschauer 2007; Prensky 2012) that in the digital era and the language of the computer-mediated communication not limited by formality and standardization, the characteristics of writing style have accordingly changed, and they are obvious in the students' essays. They range from the choice of informal words and phrases (e.g. *a bunch of bureaucracy; It sounds great.*), contracted verb forms (e.g. *“Are we gonna be forced...?”*), elliptical sentences to overgeneralizations (e.g. *It is in nobody's interest to ruin some countries. They also benefit from us.; That is normal in the economy; After all when sealed, big changes will come and affect the population.*), overused metaphors (e.g. *In that spirit I believe that TTIP is necessary for Europe. Yes, Old Lady, as we like to call our continent is maybe full of good things, full of history and culture.*), to overpersonalization mostly characterized by the overuse of the personal pronoun “I” (e.g. *I have a confession to make. I only know that a couple of my friends told me some things against this contract, and I've heard some bad things contra this agreement on television*). The very choice of some essay titles (e.g. *Cheers to the TTIP!* or *TTIP in my View*) suggests personal bias, and further illustrates the aforementioned deficiencies that undermine academic as well as professional relevance of the text.

The issue of referencing seems to be even more problematic in most submitted essays, since only two essays contained the list of references that were adequately cited in the text, one of which was the essay that was awarded the first prize, which may also explain the fact that it was awarded higher grades by the assessors from the academic community. The students' incompetence in this important aspect of academic writing is demonstrated in several ways. Firstly, there are essays which completely ignore references to sources relying on personal opinions and judgments rather than the facts and information from the required literature to substantiate the arguments highlighted in the text. This approach is certainly not in accordance with Leki and Carson's (1997) concept of text-responsible writing in which students are responsible for incorporating the discipline-specific knowledge

they have gathered from the relevant sources in the content of their writing. The second important issue related to referencing is the students' general unawareness of the rhetorical conventions that can be utilized for in-text citation, such as paraphrasing, for example, since most of them simply present the information gathered from the research through a knowledge-telling rather than knowledge-transforming process (Hu 2007). Phrases like "*so sources say*" serve as an example to illustrate the aforementioned problem. In addition, technical, numerical or statistical data are frequently mentioned without acknowledging the sources, or interpreting and processing such information in a more critical way (e.g. *TTIP is going to boost the European Union's economy roughly by 120 billion euros, the US economy by around 95 billion euros and the rest of the world for around 100 billion euros*), which is certainly not an example of text-responsible writing either. Such cases that affect the authenticity of the students' written word could be characterized as unintentional plagiarism, which may result from the students' poor linguistic or disciplinary background, but what is more alarming is the fact that two submitted essays were detected as blatant and uncritical word-for-word plagiarism. Thus, instead of using the source-texts to build a repertoire of genre-specific vocabulary and background information, as well as syntactic patterns and language-based rhetorical forms to be utilized in their writing, some students simply chose to copy the whole sections. The fact that they received relatively high ranking by two members of the Assessment Committee once again reveals that the concepts of plagiarism are often differently understood by teachers, students and institutions (Sutherland-Smith 2005), and should be addressed more seriously since it violates the very foundations of academic integrity.

Problems with referencing do not only affect academic relevance of students' texts but also their professional and practical relevance. As it has already been suggested, a considerable number of submitted essays seem to suffer from over-generalizations and unnecessary metaphors without relevant information from the required literature and practical examples that would support the presented arguments. For the same reasons, there were essays that failed to meet the standards of the discipline-specific conventions of the genre in this context even though they maintained a high standard of English and general academic competence. For example, an essay that was awarded the third prize in the competition, in spite of its high standard of English and high level of academic literacy, with its philosophical and commentary stance had features of a well-written literary essay or a critical review, which are more characteristic of humanities and social sciences rather than business and economics studies. In this way, it failed to satisfy two basic components of academic writing, which are knowledge of the genre and awareness of the audience, as frequently highlighted by Hyland (2002). Furthermore, its obvious lack of professional and practical relevance and discipline-specific focus probably explains the fact that it was awarded lower grades by the assessor from the Department of Trade.

With regard to cohesion and organization of the text, a general observation can be made that the submitted essays can be broadly divided into two categories. The first category is based on a more systematic approach to the writing process, which

employs strategies like brainstorming, note-taking and synthesizing information from various sources, planning and organizing the structure of the text, using rhetorical devices and linking words to achieve cohesion and coherence in writing, and finally revising and editing the text. The very choice of some essay titles (e.g. *The Transatlantic Trade and Investment Partnership—a threat or an opportunity?*) suggests a more organized approach to writing and balanced argumentation. Such essays express the main arguments with clarity and pose no difficulties for the reader to follow the main ideas in the text smoothly. On the other hand, there were essays which were obviously based on a more spontaneous and disorganized approach to writing, which therefore sometimes resembled stream of consciousness and impressionistic accounts that placed considerable demands on the reader to follow the text unobstructedly. The most usual weaknesses that resulted from this type of approach to writing involved inappropriate or non-existent paragraphing, inadequate use of the linking devices, repetition of points previously mentioned in the text, inadequate correlation of arguments, or mentioning new arguments and ideas for the first time in the concluding paragraph, as well as elliptical or overrun sentences (e.g. *Therefore such a parallel judicial system gives the power to companies to challenge a country for compensation because the government did not work in the interest of the company but in the public interest which is clearly an usurpation of democracy and other profound matters that our society hold dear such as health, education, environment even laws that are economically social can be put out of power because they harm the company's interest and that why ISDS as a part of the TTIP is antidemocratic.*). Devoting more time to planning and organization of the text, as well as revising and editing in the process of writing would certainly reduce the above mentioned problems.

Cohesion and organization of the text are naturally connected with the overall standard of English, since those students who possess good mastery of rhetorical conventions of academic writing invariably possess a high level of linguistic accuracy. It has already been stated in the previous sections (Leki and Carson 1997; Hyland 2002; O'Farrell 2005) that the emphasis in EAP courses is on the linguistic and rhetorical aspect of academic writing rather than on the display of content knowledge, whereas the emphasis is reversed in discipline-specific courses. In addition, given the curricular objectives of ESP and EAP courses, it is assumed that the criteria for linguistic accuracy should be more lenient than those in EGP courses, since their focus is not only on students' grammatical competence but also their communicative competence. In the light of this argument, it can be said that the same principle has been applied in this essay writing competition and for the same reason abundant errors in grammatical accuracy, spelling and punctuation will not be analyzed at greater length since this is not the focus of this study. It can be noticed that most submitted essays focused on the content rather than linguistic accuracy, which is frequently the feature of students' written work in ESP courses. For this reason, frequent and persistent errors in accuracy range from minor slips to completely unacceptable mistakes and include incorrect tenses and verb forms, subject-verb agreement, plural-singular forms, incorrect word order, misused parts of speech and lexical items, unawareness of articles, limited range of vocabulary

and sentence structure as well as numerous spelling and punctuation mistakes. However, as long as they were not so predominant to obscure the meaning or impede communication, having analyzed all the submitted essays in detail, this element of assessment was clearly given less prominence, since it cannot be asserted that relatively high grades awarded in this assessment category generally match their overall standard of English.

Finally, it is logical to assume that completeness of the work was the element that would entail the successful performance in all the aforementioned elements of the assessment. Accordingly, seriously under-length essays showed to be equally insufficient in all the other assessment categories. This is most clearly evident in the essay of 511 words, completely lacking in academic and professional relevance, general linguistic accuracy and the awareness of the academic conventions and style, being too personal, too informal, incomplete, and with arguments not substantiated by information from the required literature, disciplinary knowledge or practical experience. On the other hand, the same principle may not be so straightforward for all the submitted essays. Some well-researched essays exhibited flaws in the rhetorical and linguistic conventions of academic writing, while some exceptionally well-written essays demonstrated deficiencies in the disciplinary knowledge background. It is even more surprising that one of the very few essays that I believe demonstrated plentiful evidence of completeness, with its almost impeccable linguistic accuracy, sufficient referencing and display of discipline-specific knowledge, was disqualified by one assessor. This shows limitations of this research, since such discrepancies could have been clarified had the Assessment Committee discussed their decisions in a post-assessment feedback session, which are the issues that will be given more attention in the section that follows.

5.3 Comparative Analysis of the Assessment Criteria

The issue of inconsistency in the assessment criteria of the written work produced in the academic discourse community has been diagnosed to be of critical importance in the previous sections of this paper (Leki and Carson 1997; Harwood and Hadley 2004; O'Farrell 2005; Hyland 2013), due to different concepts of good writing, as well as rhetorical conventions and genre preferences across disciplines. This section aims to explore those differences in a comparative analysis of the assessment criteria of the Assessment Committee that comprised different academic and professional backgrounds: an ESP lecturer and two professors from the Department of Trade and the Department of Organization and Management, as the representatives of the academic community, and two officials from the British Embassy in Zagreb, as the representatives of the professional working community.

As usual, a more general observation could be made with reference to the students' overall performance in essay writing by analyzing their results as shown in Table 1, which presents the total number of specific grades awarded for the particular elements of assessment. Considering the fact that the total number of

Table 1 Number of specific grades per assessment category

Grades	Grade 0	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Task achievement	13	5	6	53	22	16
Academic relevance and referencing	13	8	31	45	10	8
Professional and practical relevance	13	2	19	46	27	8
Cohesion and organization of the text	13	5	17	41	31	8
Standard of English	13	3	10	37	38	14
Completeness of the work	14	6	11	43	30	11

specific grades for 23 submitted essays was 115 per specific element of assessment, it can be concluded that the results revolve around average performance since grade 3 was most frequently awarded in all the assessment categories. Grade 4 was the second most frequently awarded grade, except for academic relevance and referencing, where grade 2 was the second most dominant grade, which is to be expected as this category was perceived to be the most problematic feature in the discourse analysis of the students' written work. Since successful referencing does not only entail the ability to gather, select and abstract information, summarize, interpret and paraphrase information from different sources, but also a range of transferable skills such as information literacy skills, research and investigation skills, analytical and critical thinking skills, as well as argumentation and problem-solving skills that are applicable in students' academic and future professional careers, this is the skill that certainly leaves room for improvement. In spite of the good average results, the number of disqualifying grades 0 and failing grades 1 is relatively high compared to the number of the highest grades in respective assessment categories, which corresponds to my overall impression of the reviewed essays that revealed a noticeable gap between exceptionally well-written and well-researched essays and those at the lower end of the scale that failed to meet the minimum requirements of academic literacy. However, the limitations of this case study have already been emphasized with regard to the reasons for disqualifying certain essays, which have only been specified in six cases on the grounds of plagiarism and narrow focus, so a collaborative discourse analysis of the submitted essays would certainly generate a more balanced view.

The discrepancies in the assessment criteria are more visible in Table 2, which shows the comparative assessment grid with total scores for each submitted essay based on the sum of all grades per individual assessor. The most dramatic differences are visible in nine essays that are highlighted in the shaded rows, where total essay scores range from 0 to 27, which means that 39% of essays exhibited considerable inconsistencies in the assessment criteria. Another four essays (C, F, L, and Q) could be placed in the similar category since they show significant differences between their highest and lowest scores, ranging from 10 to 13 points. The fact that three of the above mentioned essays were those that were awarded the first three prizes (C, L and Q) is another proof of the necessity of a more detailed

Table 2 Comparative assessment grid—total essay scores per assessor

Total essay score	Department of business foreign languages	Department of trade	Department of organization and management	British embassy zagreb—political section	British embassy zagreb—political section (NS) ^a
Essay A	0	25	15	10	0
Essay B	16	16	14	12	0
Essay C	30	29	29	18	23
Essay D	22	20	21	11	18
Essay E	26	20	20	23	0
Essay F	9	14	9	6	1
Essay G	22	23	22	24	24
Essay H	16	17	17	17	12
Essay I	16	21	14	21	12
Essay J	17	21	16	17	24
Essay K	18	22	18	0	19
Essay L	18	24	24	28	26
Essay M	27	25	27	15	0
Essay N	0	22	0	20	0
Essay O	17	18	18	19	26
Essay P	16	20	18	14	18
Essay Q	24	19	28	17	29
Essay R	16	17	18	13	18
Essay S	21	20	21	18	26
Essay T	16	21	17	0	13
Essay X	24	27	24	0	18
Essay W	21	22	21	17	17
Essay Z	17	21	15	0	8

^aNative speaker of english

collaborative analysis of the essays that showed considerable discrepancies in essay scores. What is also evident from Table 2 is that there is more considerable agreement in the assessment criteria among the members of the academic community when compared to those of the working professionals. This suggests that the concept of academic literacy is universal regardless of specific disciplinary focus, and once again challenges the Hyland's (2002) insistence on ESP's focus on specificity. Plenty of evidence to support this claim can be seen in essay M characterized by impeccable linguistic accuracy, referencing skills and display of disciplinary knowledge background, which was accordingly among the most highly ranked essays by the assessors coming from the academic community, while it received very low ranking and was disqualified by the assessors coming from the professional working community. Another question is naturally raised in this context, and that is whether the concepts of efficient written communication in the academic community match the qualities appreciated in the contemporary professional setting.

More detailed assessment of the submitted essays is presented in Tables 3, 4, 5, 6, 7 and 8 (see Appendix) that show the grades awarded to each essay in the comparative grids for specific assessment categories respectively. The same aforementioned inconsistencies in the assessment criteria are visible in the grades awarded for particular elements of assessment, which were unanimously agreed upon only in four cases in all six assessment grids. An example to further illustrate this point is the assessment grid for task achievement, which shows that two severely under-length essays (511 and 648 words) were not quite equally penalized for their failure to fulfill the minimum word requirement. It is surprising that standard of English was the category which showed most agreement in the assessment criteria considering the fact that most members of the Assessment Committee did not come from a linguistic disciplinary background. On the other hand, it would be particularly insightful to exchange opinions with other members of the Assessment Committee with regard to essay L, for example, since my grades were consistently lower in all the elements of assessment than other assessors' grades, except for completeness of the work.

The findings of this case study, both from the discourse analysis of the submitted essays as well as the comparative analysis of the assessment criteria, proved to be quite indicative of the persistent issues related to the development of writing skills in the academic and professional context as perceived in the scholarly work on the subject as well as practical teaching experience in ESP and EAP courses. Conclusions and recommendations for improvement will be considered in more detail in the final section of this paper.

6 Conclusion and Recommendations

The concepts of good writing, as already suggested in this paper, are not universally perceived across disciplines so descriptions range from "interesting and bold at one end to precise, succinct, and accurate in punctuation and grammar at the other. For example, humanities use the terms eloquent, vivacious, and aesthetically satisfying, whereas social scientists preferred non-trivial, relevant, and plausible. Arts favor creative, imaginative and persuasive, whereas natural science used theory-driven and analytic" (O'Farrell 2005, p. 150). The aim of this paper was not to answer the aforementioned question, but to compare the recurring dilemmas related to the development of writing skills in everyday ESP and EAP teaching practice to the opinions in the scholarly work on the subject and the findings of this case study, which have all highlighted similar areas that need to be given careful consideration across the curriculum.

The first important issue revolved around the dilemma whether generic writing skills and academic competences are transferable across the university curriculum or whether ESP and EAP writing instruction should focus on the genre-specific conventions of disciplinary courses. Since effective academic writing often employs universal writing skills and strategies that are required by various disciplines across the university curriculum, I would definitely argue that a certain level

of academic writing competence can only be accomplished by the successful combination of generic and discipline-specific conventions of academic writing style. This case study offers abundant evidence in support of this claim, since the essay writing competition combined a generic academic genre with a discipline-specific topic, which nonetheless generated considerable interest among the university students coming from diverse disciplinary backgrounds. On the other hand, it demonstrated the usual deficiencies in students' academic writing competence and linguistic proficiency regardless of their disciplinary background. More frequent cooperation between language departments and university departments that teach content courses is therefore highly recommendable since it would certainly facilitate the resolution of the aforementioned dilemma by synchronizing the objectives of academic writing instruction and the assessment criteria across the curriculum. This case study has showed that such collaboration was very successful in compiling the authentic sources for the required and supplementary literature used in the competition as well as defining the assessment criteria that were aligned with the objectives of EAP and discipline-specific courses, combining the generic principles of academic writing with the demonstration of discipline-specific knowledge. The inconsistency in the assessment criteria between different disciplines, departments and lecturers, which was clearly articulated in the relevant literature and diagnosed by this case study, would certainly be reduced in this way. More importantly, students' testimonials often propose that a detailed feedback rather than simply a grade is the best way to raise their awareness of errors and suggest ways of improving their weaknesses. Thus, closer teacher-student cooperation in the writing as well as assessment process is also highly recommendable.

Since it goes without saying that effective writing skills are immensely important both in the academic as well as work-related context, not only because they can be utilized for developing students' linguistic and academic competence but also a range of transferable skills that are applicable in practical professional settings, another dilemma that was frequently discussed in this paper was connected with the question whether explicit and systematic writing instruction should only be included in the ESP and EAP syllabus or whether core courses should also include it in their respective syllabi. Plentiful evidence from the relevant research on this subject (Leki and Carson 1997; Hyland 2002; Zhu 2004; O'Farrell 2005; Knezović 2016) emphasizes the necessity of writing instruction across the curriculum, although time limitations pose problems for incorporating it in the regular content-focused curriculum. This is equally visible in ESP courses that often place considerable emphasis on the content knowledge and specialist vocabulary acquisition rather than sufficient development of transferable skills and competences, which significantly reduces teaching time devoted to the development of writing skills as well as the time devoted to quality assessment of students' written work. For this reason, it is advisable to incorporate more team writing assignments in ESP and EAP courses that would reduce the time-consuming assessment, while at the same time fostering teamwork skills often emphasized through team assignments in discipline-specific courses and appreciated in the work-related context.

Given the curricular objectives of ESP and EAP courses with respect to the writing skills instruction and in order to avoid the content-focused syllabus, it

would be beneficial to include alternative approaches to syllabus design and teaching methodology such as task-based instruction, process-based instruction, genre-based approach and competency-based instruction (Richards 2006), which proved to generate excellent results in my everyday teaching practice in ESP and EAP courses. They focus on exploring the features of different genres employed in academic writing across the university curriculum, and a range of strategies which are important in the process of writing such as brainstorming, note-taking or editing, which develop skills and competences such as analytical and critical thinking, problem-solving as well as applying specialist knowledge students have acquired in their core courses in a variety of writing tasks. Most importantly, such approaches to teaching methodology and writing instruction offer ample opportunities to focus not only on the outcomes or the products of learning, in this case students' written work, but to equally focus on the writing process, which students frequently report to be reverse in everyday teaching practice. Therefore, it is of vital importance that the teacher should provide students with scaffolding and assistance by carefully guiding students through the process of writing and giving them detailed feedback on their written work so that they are helped to move through successive "zones of proximal development" (Vygotsky 1978 cited in Hu 2007).

Another issue that has not been ignored in this paper is the influence of advanced technology and different types of computer-mediated communication on the students' general literacy level, which was often reported to be the least beneficial for the development of students' academic writing competence. Increasing levels of plagiarism in students' written work were highlighted as one of its most worrying side-effects, which was unfortunately detected in several essays reviewed in this case study. This presents even more responsibility for the writing instructors to assist students in developing their information literacy skills in order to manage efficiently the abundance of information they can access so easily on the Internet in order to avoid intentional and unintentional plagiarism and to use the Internet as a tool for academic research. In addition to the aforementioned problem, we frequently encounter the idea that the language of the Internet and computer-mediated communication that students are frequently exposed to, and which is not hampered by formality and standardization, should equally relax the traditional rules and conventions of academic writing. If we understand computer-mediated communication as a type of discourse with its own rules and conventions, then we simply need to make students aware that those rules and conventions are not equally applicable in the academic discourse community, which accordingly suggests that we should not considerably modify our traditional standards of assessment simply because we live in the digital era.

Lastly, but maybe most importantly, even though it has been confirmed that academic writing is a fundamental skill needed across disciplines, since students are expected to submit academic texts on a regular basis, it has to be emphasized that they are rarely given adequate input on how to produce those texts. Although there are more and more writing courses offered across universities today than in the past, students still report the lack of appropriate instruction on academic writing conventions, suggesting that they are considered self-evident and self-explanatory by the academy. It has to be acknowledged that most academic writing courses are

usually elective and taken by a small number of students who wish to perfect their academic writing competence, at least this is the case at the Faculty of Economics and Business in Zagreb. This means that the majority of students never receive formal instruction on the conventions of academic writing, a situation clearly articulated by O'Farrell (2005) and reminiscent of my own university experience, which does not make it an isolated phenomenon, but a persisting problem of the academy. Systematic academic writing instruction should therefore not be the exclusive feature of ESP and EAP courses, but it should be adequately included in the course content of the students' disciplinary courses so as to equip them with a range of academic skills and competences as well as transferable skills that will ensure success not only in their academic careers but also their future professional careers.

Appendix

Table 3 Comparative assessment grid—task achievement

Essay grades	Department of Business Foreign Languages	Department of Trade	Department of Organization and Management	British Embassy Zagreb—Political Section	British Embassy Zagreb—Political Section (NS) ^a
Essay A	0	5	3	1	0
Essay B	3	3	3	2	0
Essay C	5	5	5	3	4
Essay D	3	3	3	1	3
Essay E	5	4	3	4	0
Essay F	1	3	1	1	0
Essay G	4	5	4	4	4
Essay H	3	3	3	3	3
Essay I	3	4	3	3	2
Essay J	3	3	3	3	4
Essay K	3	4	3	0	3
Essay L	3	4	4	5	4
Essay M	5	5	5	3	0
Essay N	0	5	0	3	0
Essay O	3	3	3	3	4
Essay P	3	4	3	2	3
Essay Q	5	3	5	3	5
Essay R	3	3	3	2	3
Essay S	4	3	3	3	5
Essay T	3	4	3	0	3
Essay X	4	5	4	0	3
Essay W	4	4	3	3	2
Essay Z	3	4	3	0	2

^aNative speaker of english

Table 4 Comparative assessment grid—academic relevance and referencing

Essay grades	Department of Business Foreign Languages	Department of Trade	Department of Organization and Management	British Embassy Zagreb—Political Section	British Embassy Zagreb—Political Section (NS) ^a
Essay A	0	5	2	1	0
Essay B	3	3	2	1	0
Essay C	5	5	5	3	3
Essay D	3	3	3	1	1
Essay E	3	2	3	3	0
Essay F	1	2	2	1	0
Essay G	3	3	3	4	3
Essay H	2	3	3	2	1
Essay I	2	3	2	3	1
Essay J	2	4	2	3	3
Essay K	2	3	3	0	3
Essay L	2	4	4	4	3
Essay M	4	5	4	2	0
Essay N	0	3	0	3	0
Essay O	2	3	3	3	4
Essay P	2	3	3	2	3
Essay Q	3	3	4	2	5
Essay R	2	3	3	2	2
Essay S	3	3	3	2	3
Essay T	2	3	3	0	2
Essay X	5	5	4	0	3
Essay W	2	3	3	2	2
Essay Z	2	3	2	0	2

^aNative speaker of english**Table 5** Comparative assessment grid—professional and practical relevance

Essay grades	Department of Business Foreign Languages	Department of Trade	Department of Organization and Management	British Embassy Zagreb—Political Section	British Embassy Zagreb—Political Section (NS) ^a
Essay A	0	4	2	2	0
Essay B	3	3	2	2	0
Essay C	5	5	5	2	4
Essay D	3	3	3	1	3
Essay E	5	3	3	4	0
Essay F	2	2	2	1	0
Essay G	4	3	3	4	4
Essay H	3	3	2	3	2
Essay I	3	4	2	4	3

(continued)

Table 5 (continued)

Essay grades	Department of Business Foreign Languages	Department of Trade	Department of Organization and Management	British Embassy Zagreb—Political Section	British Embassy Zagreb—Political Section (NS) ^a
Essay J	3	4	2	3	4
Essay K	3	4	3	0	4
Essay L	3	3	4	5	5
Essay M	4	4	4	2	0
Essay N	0	4	0	4	0
Essay O	3	3	3	3	4
Essay P	3	4	3	2	3
Essay Q	3	3	4	3	5
Essay R	3	2	3	2	3
Essay S	3	4	3	3	5
Essay T	3	4	3	0	2
Essay X	3	4	4	0	3
Essay W	4	3	3	3	3
Essay Z	3	4	2	0	2

^aNative speaker of english**Table 6** Comparative assessment grid—Cohesion and organization of the text

Essay grades	Department of Business Foreign Languages	Department of Trade	Department of Organization and Management	British Embassy Zagreb—Political Section	British Embassy Zagreb—Political Section (NS) ^a
Essay A	0	4	3	1	0
Essay B	3	2	2	1	0
Essay C	5	4	4	3	4
Essay D	4	4	4	2	4
Essay E	5	3	4	4	0
Essay F	2	1	1	1	0
Essay G	3	4	4	4	5
Essay H	2	2	3	3	2
Essay I	3	3	3	4	2
Essay J	3	3	3	3	4
Essay K	4	4	3	0	3
Essay L	3	5	4	5	5
Essay M	4	3	4	3	0
Essay N	0	3	0	3	0
Essay O	3	3	3	3	5
Essay P	2	3	3	2	3
Essay Q	4	3	5	3	4
Essay R	3	4	3	2	3

(continued)

Table 6 (continued)

Essay grades	Department of Business Foreign Languages	Department of Trade	Department of Organization and Management	British Embassy Zagreb—Political Section	British Embassy Zagreb—Political Section (NS) ^a
Essay S	3	3	4	3	4
Essay T	2	3	3	0	2
Essay X	4	3	4	0	3
Essay W	4	4	4	3	3
Essay Z	3	3	2	0	2

^aNative speaker of english**Table 7** Comparative assessment grid—standard of english

Essay grades	Department of Business Foreign Languages	Department of Trade	Department of Organization and Management	British Embassy Zagreb—Political Section	British Embassy Zagreb—Political Section (NS) ^a
Essay A	0	3	2	4	0
Essay B	3	3	2	5	0
Essay C	5	5	5	4	4
Essay D	5	4	4	4	4
Essay E	4	4	4	4	0
Essay F	2	3	2	1	1
Essay G	4	4	4	4	4
Essay H	3	3	3	3	2
Essay I	2	3	2	4	1
Essay J	3	3	3	3	4
Essay K	4	3	3	0	3
Essay L	3	4	4	4	5
Essay M	5	4	5	3	0
Essay N	0	3	0	4	0
Essay O	3	3	3	4	4
Essay P	3	3	3	3	3
Essay Q	5	4	5	4	5
Essay R	3	2	3	3	4
Essay S	4	4	4	4	5
Essay T	3	3	2	0	2
Essay X	5	5	4	0	3
Essay W	4	4	4	3	4
Essay Z	3	3	3	0	0

^aNative speaker of english

Table 8 Comparative assessment grid—completeness of the work

Essay grades	Department of Business Foreign Languages	Department of Trade	Department of Organization and Management	British Embassy Zagreb—Political Section	British Embassy Zagreb—Political Section (NS) ^a
Essay A	0	4	3	1	0
Essay B	1	2	3	1	0
Essay C	5	5	5	3	4
Essay D	4	3	4	2	3
Essay E	4	4	3	4	0
Essay F	1	3	1	1	0
Essay G	4	4	4	4	4
Essay H	3	3	3	3	2
Essay I	3	4	2	3	3
Essay J	3	4	3	2	5
Essay K	2	4	3	0	3
Essay L	4	4	4	5	4
Essay M	5	4	5	2	0
Essay N	0	4	0	3	0
Essay O	3	3	3	3	5
Essay P	3	3	3	3	3
Essay Q	4	3	5	2	5
Essay R	2	3	3	2	3
Essay S	4	3	4	3	4
Essay T	3	4	3	0	2
Essay X	3	5	4	0	3
Essay W	3	4	4	3	3
Essay Z	3	4	3	0	0

^aNative speaker of english

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Planning Education in Economics and Business Studies: Perceptions on Factors Influencing the Planning

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Abstract This work presents a descriptive analysis of the perception of students and lecturers at a Faculty of Economics and Business Studies regarding the level of academic planning in the educational programmes comprising the degree courses on offer. We also analyse both students' and lecturers' satisfaction with the teaching-learning process. More specifically, we study the functionality of the course guides using a survey conducted during the 2014–2015 academic year to see whether there is sufficient student feedback and whether actions are implemented to pool the educational programmes in such a way as to promote interdisciplinarity. Finally, satisfaction with the teaching-learning process is assessed, using a 0–4 point Likert scale to analyse the responses given to the previously mentioned indicators. A correlation study shows the relationship between the indicators selected to measure this perception. A regression analysis concludes that sufficient student feedback on the review of the course guides (CG) explains 46.6% of lecturers' satisfaction with the development of the teaching—learning process.

Keywords Teaching quality • Educational programmes • Satisfaction

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1 Introduction and Objective

The European Higher Education Area is the common framework of reference for university qualifications across Europe, providing a homogenous quality education system, with greater mobility for university students and academic staff. In this context, today's universities can be considered service providers where the students are the consumers or clients (Sander et al. 2000; Gremler and McCollough 2002; Marzo-Navarro et al. 2005; Williams and Cappuccini-Ansfield 2007), who, like any consumer, are looking for the best price-quality relation. This scenario has thus led universities to offer enhanced quality to ensure sustainability (Helgesen and Nettet 2007; Seng and Ling 2013), and in the case of state universities, to improve services to the public.

The literature describes the association existing between the quality of teaching-learning processes and the level of satisfaction of students and lecturers (Pérez et al. 2012; Velazco et al. 2015). Furthermore, studies demonstrate a positive relationship between student satisfaction and student loyalty (Helgesen and Nettet 2007). Consequently, the fact students are satisfied, guarantees, in some way, the quality of services and improved positioning of universities in the higher education area.

There are many ways to measure student and lecturer satisfaction with university studies and to assess the services provided by universities. Feedback surveys tend to be the most commonly used method (Beecham 2009; Gruber et al. 2010; Joo et al. 2011; Campaña et al. 2016). A number of works associate student and lecturer satisfaction with the quality of aspects related to the teaching-learning process in university studies. Cardone et al. (2001), for example, analyse the implications of teaching quality for student satisfaction. Gruber et al. (2010) study students' perceptions of, and satisfaction with, the services offered by a German university. Suarman (2015) presents a gender-disaggregated study which shows how actions implemented by university teaching staff and the teacher-student relationship impact on student satisfaction.

Within this European framework, 9 years ago, the Faculty of Economic and Business Sciences at the University of Castilla-La Mancha in Albacete, implemented its "Internal Quality Assurance System" accredited by ANECA with the AUDIT quality seal, the aim of which is to promote and enhance the quality of the studies on offer. Specifically, one of the aims is to evaluate different aspects of the university studies by annually surveying all stakeholders, in order to help design different lines of action and to improve the courses on offer.

The main aim of this work is to analyse the perception of students and lecturers regarding aspects related to the quality of educational programmes and their satisfaction with the development of teaching-learning processes. Finally, the study also aims to assess the relationship between satisfaction and the quality of the educational programmes on offer.

2 Method and Sample

The data were collected using a survey of our own design, conducted face to face with students and lecturers from the Faculty of Economic and Business Sciences at the University of Castilla-La Mancha during April and May 2015. To ensure respondents properly understood the questions, a group of interviewers were specifically trained in how to explain clearly and concisely what each question was intended to evaluate.

The survey is structured in seven sections. The first section refers to information on gender, degree course (Economics or Business Administration) and year of study (1st, 2nd, 3rd or 4th). The second section is intended to evaluate whether the faculty has institutional improvement policies designed to ensure a culture of quality and a set of accessible, publicly known objectives. The third section aims to analyse whether teaching has been sufficiently and appropriately planned so as to guarantee the quality of the study programmes and to assess whether there exist internal review and renewal procedures with student participation. The fourth section collects information on aspects of the teaching-learning process in the classroom, especially those related to assessment and grading procedures, focusing on encouraging learning. The fifth section looks at whether the faculty has quality academic staff and whether there are procedures designed to identify needs for training and possibilities for improvement to ensure that educational functions are properly realised. The sixth section addresses how the faculty manages and improves its material resources and counselling and tutoring services in order to offer appropriate opportunities for learning. The seventh and final section examines students’ perceptions of how the faculty implements procedures to ensure that learning outcomes and stakeholders’ satisfaction with teaching-learning processes are evaluated, analysed and published.

The survey questions are all worded affirmatively and the respondent is asked to assess on a Likert-type scale: 1: “Not at all”, 2: “A little”, 3: “Quite a lot”, and 4: “A lot”. The intermediate value was not included on the scale so as to stop respondents using it to avoid making a positive or negative response to the statement. Table 1 shows the study sample in terms of the number of surveys received, disaggregated by degree course and students’ study year.

To analyse the results, we used EXCEL and the statistical software package IBM SPSS for Windows (version 22). Of the information collected in the survey, this study uses the data from the third and seventh sections. Specifically, Table 2 shows

Table 1 Study sample

	Academic staff	Economics students	Business admin. students
1st year	8	29	93
2nd year	11	48	61
3rd year	6	61	58
4th year	10	13	16
Total	35	151	228

Table 2 Indicators

What is assessed?	Indicators
Whether the CG are useful (well designed) for academic staff in their teaching	<i>Functionality</i> of the CG designed for the degree courses
Whether CG reviews include feedback from students	<i>Sufficiency</i> of feedback from students in CG reviews
Whether actions are implemented to pool CG in order to encourage interdisciplinarity	<i>Importance</i> given by the faculty to encouraging interdisciplinarity in the CG
Whether teaching staff and students are satisfied with the approaches to teaching and learning used at the faculty	<i>Satisfaction</i> with the teaching-learning process

Source: Own elaboration from Pardo et al. (2007)

the indicators used to evaluate the quality assurance of educational programmes and to assess stakeholders' satisfaction with the teaching-learning processes, using the following assessment criteria:

- **Functionality:** Referring to the degree of usefulness of the measures implemented to satisfy any needs.
- **Sufficiency:** Level reached (quantitative or qualitative).
- **Importance:** Referring to the priority and value given to the proposals made.
- **Satisfaction:** Mood state of teaching staff and students.

3 Results

This section presents the study results. Firstly, Table 3 shows the main descriptive statistics of the total sample.

From the T-test used to compare the means of the two subpopulations (students-lecturers), we can conclude that "students" and "lecturers" do not belong to the same population. Figure 1 shows the difference in means, and consequently, we can conclude that students' and lecturers' perceptions of aspects related to the CG and satisfaction with the teaching-learning process are different. Hence, we present the results disaggregated by each subsample.

3.1 Results for Students

Table 4 shows the descriptive statistics of the indicators analysed in the "students" subsample.

A preliminary analysis confirms that the mean values awarded by students for indicators 1, 2 and 4 are above 2.6 on a 1–4 point Likert scale. Thus, students mostly

Table 3 Descriptive statistics of the total sample

		Ind_1	Ind_2	Ind_3	Ind_4
N	Valid	454	454	450	448
	Lost	0	0	4	6
Mean		2.67	2.29	2.7	2.78
Median		3	2	3	3
Mode		3	2	3	3
Standard deviation		0.795	0.653	0.732	0.617
Asymmetry		-0.105	0.055	-0.143	-0.345
Asymmetric standard error		0.115	0.115	0.115	0.115
Kurtosis		-0.448	-0.174	-0.23	0.413
Kurtosis standard error		0.229	0.229	0.23	0.23
Range		3	3	3	3
Minimum		1	1	1	1
Maximum		4	4	4	4

Ind_1 Functionality of the CG designed for the degree courses, *Ind_2* Sufficiency of feedback from students in CG reviews, *Ind_3* Importance given by the faculty to encouraging interdisciplinarity in the CG, *Ind_4* Satisfaction with the teaching-learning process

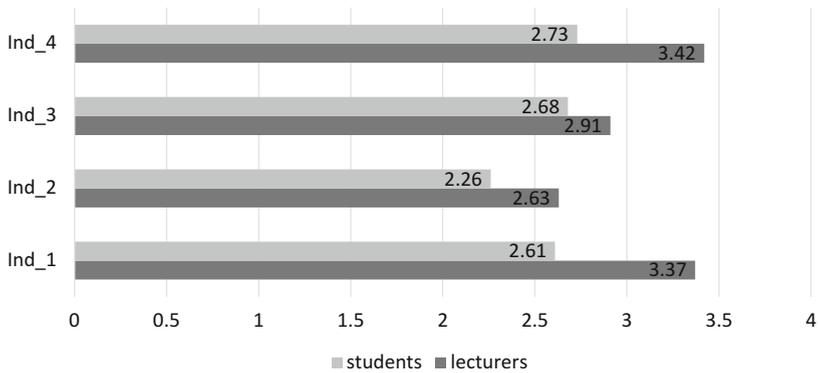


Fig. 1 Difference in means

Table 4 Descriptive statistics “students”

		Ind_1	Ind_2	Ind_3	Ind_4
N	Valid	419	419	416	415
	Lost	0	0	3	4
Mean		2.61	2.26	2.68	2.73
Median		3	2	3	3
Mode		3	2	3	3
Standard deviation		0.785	0.639	0.729	0.58
Minimum		1	1	1	1
Maximum		4	4	4	4

Table 5 Correlation matrix “students”

			Ind_1	Ind_2	Ind_3	Ind_4
Spearman’s rho	Ind_1	Correlation coefficient	1	0.475 ^a	0.344 ^a	0.218 ^a
		Sig. (bilateral)		0	0	0
		N	419	419	416	415
	Ind_2	Correlation coefficient	0.475 ^a	1	0.403 ^a	0.197 ^a
		Sig. (bilateral)	0		0	0
		N	419	419	416	415
	Ind_3	Correlation coefficient	0.344 ^a	0.403 ^a	1	0.207 ^a
		Sig. (bilateral)	0	0		0
		N	416	416	416	412
	Ind_4	Correlation coefficient	0.218 ^a	0.197 ^a	0.207 ^a	1
		Sig. (bilateral)	0	0	0	
		N	415	415	412	415

^aCorrelation is significant at the 0.01 level

consider that the CG are useful (well designed) for academic staff in their teaching; that a reasonable number of actions are implemented to pool these CGs so as to encourage interdisciplinarity; and that, furthermore, students are satisfied with the approaches to teaching and learning in place at the faculty. However, students consider they do not participate enough in CG reviews.

There now follows an analysis of the relationship between the different indicators. Table 5 shows the Spearman’s correlation coefficients.

It can be seen that there is a correlation between the study variables. Specifically, there is a high correlation between the functionality of the CG and the sufficiency of feedback from students in the reviews of the CGs designed for the degree courses. The importance given by the faculty to encouraging interdisciplinarity in the CGs also correlates highly with the sufficiency of feedback from students in CG reviews.

Finally, a regression analysis was conducted to determine whether satisfaction with the teaching-learning process (Ind_4) can be predicted by the functionality of the CG designed for the degree courses (Ind_1), and the sufficiency of feedback from students in the reviews of the CG (Ind_2) and the importance given by the faculty to encouraging interdisciplinarity in the CG (Ind_3). We used the successive step method, which entails introducing the variables one by one. Two models were obtained: the first with independent variable Ind_1, and the second with independent variables Ind_1 + Ind_3. We conducted an ANOVA study to test the significance of both models.

The model selected was:

$$Ind_4 = 2.048 + 0.14Ind_1 + 0.12Ind_3 \tag{1}$$

in which Ind_1 + Ind_3 explain 8% of the variance of Ind_4. We excluded the Ind_2 variable from the model as its contribution to the explanation of the changes in the dependent variable is already explained by the other variables included. We can see that student satisfaction with the teaching-learning process relates positively to the functionality of CG and the importance given by the faculty to encouraging

interdisciplinarity. However, there are other factors not identified in the model which have more weight.

3.2 Results for Lecturers

Table 6 shows the descriptive statistics of the indicators analysed in the “lecturers” subsample.

Lecturers mostly consider that the CG are useful (well designed) for academic staff in their teaching; that students participate sufficiently in CG reviews; and that enough actions are implemented to pool CG so as to encourage interdisciplinarity. Furthermore, they are highly satisfied with the approaches to teaching and learning in place at the faculty.

Table 7 shows the correlation matrix between the different indicators. Lecturers’ satisfaction with the teaching-learning process correlates highly with the

Table 6 Descriptive statistics “lecturers”

		Ind_1	Ind_2	Ind_3	Ind_4
N	Valid	35	35	34	33
	Lost	0	0	1	2
Mean		3.37	2.63	2.91	3.42
Median		3	3	3	4
Mode		3	3	3	4
Standard deviation		0.547	0.731	0.753	0.708
Minimum		2	1	2	1
Maximum		4	4	4	4

Table 7 Correlation matrix “lecturers”

			Ind_1	Ind_2	Ind_3	Ind_4
Spearman’s rho	Ind_1	Correlation coefficient	1	0.340 ^a	-0.016	0.217
		Sig. (bilateral)		0.046	0.93	0.225
		N	35	35	34	33
	Ind_2	Correlation coefficient	0.340 ^a	1	0.430 ^a	0.710 ^b
		Sig. (bilateral)	0.046		0.011	0
		N	35	35	34	33
	Ind_3	Correlation coefficient	-0.016	0.430 ^a	1	0.530 ^b
		Sig. (bilateral)	0.93	0.011		0.002
		N	34	34	34	32
	Ind_4	Correlation coefficient	0.217	0.710 ^b	0.530 ^b	1
		Sig. (bilateral)	0.225	0	0.002	
		N	33	33	32	33

^aCorrelation is significant at the 0.05 level

^bCorrelation is significant at the 0.01 level

sufficiency of feedback from students in the review of the CG designed for the degree courses. Lecturers' satisfaction with the teaching-learning process also correlates highly with the importance given by the faculty to encouraging interdisciplinarity in the CGs.

Finally, a regression analysis was conducted to determine whether lecturers' satisfaction with the teaching-learning process (*Ind_4*) can be predicted by the functionality of the CG designed for the degree courses (*Ind_1*), and the sufficiency of feedback from students in the reviews of the CG (*Ind_2*) and the importance given by the faculty to encouraging interdisciplinarity in the CG (*Ind_3*). Using the successive step method, a single model was obtained, where *Ind_2* was the independent variable. We conducted an ANOVA study to test the significance of the selected model:

$$Ind_4 = 1.626 + 0.674Ind_2 \quad (2)$$

In this case, *Ind_2* explains 46.6% of the variance of *Ind_4*. In this model, we excluded the *Ind_1* and *Ind_3* variables since their contribution to the explanation of the changes in the dependent variable (*Ind_4*) is already explained by the variable included. Thus, it is demonstrated that lecturers' satisfaction with the teaching-learning process is determined by the sufficiency of feedback from students in the CG reviews.

4 Conclusions

Students' and lecturers' perceptions of aspects related to CG and satisfaction with the teaching-learning process are different. Both students and teachers mostly consider that the CG are useful (well designed) for academic staff in their teaching and that enough actions are implemented to pool CG so as to encourage interdisciplinarity. The level of satisfaction with the approaches to the teaching-learning process in place at the faculty is high among both groups, although satisfaction is greater among lecturers. However, students consider they do not participate sufficiently in CG reviews, in contrast to the opinion of teaching staff, who feel their participation is sufficient.

The students' opinions reveal a significant relationship between the functionality of the CG and the sufficiency of feedback from students in the reviews of the CG designed for the degree courses. The importance given by the faculty to encouraging interdisciplinarity in the CG correlates highly with the sufficiency of feedback from students in the reviews of the CG. By contrast, in the subsample of lecturers we find that their satisfaction with the teaching-learning process correlates highly with the sufficiency of feedback from students in the reviews of the CG designed for the degree courses. Furthermore, the lecturers' satisfaction with the teaching-learning process correlates highly with the importance given by the faculty to encouraging interdisciplinarity in the CG.

In the case of the students, the functionality of the CG designed for the degree courses, together with the importance given by the faculty to encouraging interdisciplinarity, explains 8% of the satisfaction with the teaching-learning process. Consequently, the model is not sufficiently useful. In the case of the lecturers, the sufficiency of feedback from students in the reviews of the CG explains 46.6% of their satisfaction with the teaching-learning process.

5 Implications

There is no doubt that universities, understood as institutions providing a service to students, have changed in recent years. Their new, student-centred orientation pursues the optimisation of resources and the maximum efficiency of employees. Although we are aware that student satisfaction is explained by a series of uncontrollable factors, such as the personal and family situation of the student, which go beyond the scope of this work, universities are obliged to implement actions to enhance this perceived satisfaction.

This study has demonstrated that teaching staff attach great importance to the feedback on CGs from students. By contrast, this is not of such great importance to the student population, for whom satisfaction depends more on the functionality of these CG and the importance given to encouraging interdisciplinarity through the CG. Further research on these aspects could improve the level of satisfaction of both lecturers and students and help our universities project an image of quality.

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Part IV
Risk Management

Institutional Risks: General Principles of Influence on Pension Systems

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Abstract The pension system is a complex institutional system functioning in a constantly changing internal and external environment. Pension systems are dynamic ones and their parameters are changed under the influence of various factors, the most significant of which are demographic, investment and institutional ones. Institutional factors influence on both the distributional and funded pension systems. However, the article examines the influence of various factors on institutional investment profitability as the key indicator of funded pension systems. There has obtained such factors influencing financial and, consequently, pension institutions as the quality of the legal system, quality of the government regulation, corruption level, religious beliefs, safety and freedom of doing business etc.

Keywords Financial system • Pension system • Institutional risks

1 Introduction

Pension provision is one of the most important and widely discussed themes in the Russian economy. The pension system is a quite complex institutional system. In the context of dynamic external and internal environment it is very important to research the various factors that influence on the pension systems of different types for better policy implementation in terms of pension provision of current and future pensioners. The aim of this work is to identify the role of institutional factors among all the factors that influence on pension systems, and to determine the influence of institutional factors on the investment profitability, which in turn has a direct influence on the main indicators of funded pension systems. Pension systems are influenced by a number of factors, among which are economic, political, demographic, investment and institutional ones.

Wills and Sherris (2010) and Kwon (2008) note that the pension systems of the distributive type are most influenced by demographic risks. They relate life

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expectancy, the number of the employed population, retirement age, etc. to demographic factors greatly influencing on pension systems. Kudrin and Gurvich (2012) substantiate the regularity of the influence of demographic risks on the pension system; in particular, they examine the influence of demographic factors on the budget indicators, including GDP. However, as Xu et al. (2007) note, for pension systems of the funded type investment risks are particularly significant. Among investment risks influencing the pension system there is a risk of loss of savings, reduction of investment income etc. The influence of the investment risks on pension systems is widely studied in the world literature. Sustainability of pension systems under the influence of investment risks is investigated by Kwon (2008), Wills and Sherris (2010), Xu et al. (2007) and Vidal-Meliá et al. (2006). They propose a model for determining primary functions of pension systems depending on the investment parameters. Bikker and Vlaar (2007) and Beetsma and Buccioni (2011) offer approaches for optimizing pension systems, depending on the investment parameters.

2 Influence of Institutional Risks on Pension Systems

The influence of institutional factors on both the distribution and funded pension systems is not widely discussed in the literature. Traditionally, institutions are certain rules or norms of human activities and tools for their enforcement. Accordingly, institutional risks for pension institutions are the risks influencing on the number of rules, laws and demands, according to which the pension system is organized. In general, among a number of institutional factors directly influencing on pension systems there are a share of management costs in the total revenues of the pension system, share of non-insurance (preferential pensions), share of the funded part of pension contributions, etc. In addition, a variety of institutional factors has a direct influence on the investment profitability, which in turn is the most important factor influencing on the main indicators of funded pension systems.

The literature widely considers the problems of the influence of institutional factors on business activities, investment attractiveness and financial systems as a whole. To the main institutional factors influencing the financial system, we may relate, for example, the level of the legal system, regulation of entrepreneurial activities, level of bureaucracy and corruption, religious beliefs, cultural traditions, safety and freedom of doing business, information openness and quality of public institutions. The influence of the quality of the business regulation on the investment attractiveness is considered by Naude and Krugell (2007). Based on the panel data of 43 countries the authors found that a stricter regulation of economic activities and a lack of economic incentives for business development were the main factors of low investment attractiveness.

The results of the research by Anghel (2005) suggest that a higher level of freedom of doing business in the recipient country, which is manifested in the low

participation of the government in the regulation of business activity, as well as government policies to stimulate foreign trade and business development lead to an increase in foreign direct investments. As Lee and Mansfield (1996) noted, a high degree of protection of property rights promoted the growth of foreign direct investments. Transparency and efficiency of the legal environment for the protection of investors' rights, is one of important factors while making investment decisions. Guarantees of security of property rights, risks associated with the nationalization and confiscation of property, effectiveness of the judicial system, as well as the degree of investors' protection against the risk of the investment lost are becoming key factors in making investment decisions.

La Porta et al. (2006) investigate the legal rules governing the protection of investors' rights and the quality of their implementation. The results of the research show that the common law countries provide better legal protection to shareholders, while the countries of French civil law is characterized by the lowest security to protect investors' rights. Countries with German and Scandinavian civil rights provide a medium degree of protection. Martynova and Renneboog (2008) also noted the highest quality of protection of shareholders' rights in common law countries.

Mauro (1995) analyzes the influence of such an institutional factor as corruption on investments and on the basis of the empirical analysis he reveals that corruption has a significant negative influence on the growth of investments. Bissoon (2012) comes to the same conclusions. Generally, corruption is a complex institutional phenomenon, diversity of which determines its stability, particularly in the absence of adequate, effective countermeasures. According to some authors, one of the main problems of corruption is the lack of transparency of the legal framework, administrative barriers and the lack of real independence of the judiciary.

In addition, according to the international investors, one of the main limiting factors for investing in developing countries is a political risk. Sirotin and Bychenkov (2013) based on the survey data from 149 countries in 2002–2010 established the relationship between political risks and foreign direct investments. The results show that the most significant political factors for investors are political stability, governmental regulatory quality and government effectiveness. In the Multilateral Investment Guarantee Agency's report (2016) during the last several years the political risk, according to the international investors, is one of the main obstacles for investments, especially in such countries as Russia, Brazil and India.

It should be noted that for the efficient operation of financial, including pension systems, there is a need of the public confidence. Such conclusions are made by many economists, including Guiso et al. (2003) who studied the influence of the general lack of confidence on the stock market. The authors have made a correlation model of the influence of the confidence index on the investors' activity as well as studied the influence on the confidence index by such factors as gender, age, household size, education level, number of children, profession and income levels. In their paper, the authors conclude that the trust has a positive and significant effect

to participate in the stock market and much more likely to invest in stocks and funds in risky assets, i.e. people who trust others are characterized by the probability of investments in risky assets by 8.5%, as opposed to those who do not trust. Giannetti and Koskinen (2010) show that the most significant factors for the public participation in investments are a general legal level, protection of investors' rights and quality of law enforcement. Among Russian economists, it is worth noting the work by Ibragimova and Kuzina (2010), who examined the public confidence in the public, banking and non-banking institutions. The results showed that the level of public confidence in the non-banking, including pension, institutions were at a low level. The non-banking institutions were positively defined by people up to 34 years old, after 35 people do not trust non-banking institutions and generally treated them negatively.

Such an institution as religion has an undeniable influence on political preferences, human capital, work ethic, as well as the influence on decision-making by economic actors including both financial and investment markets. So, Aggarwal and Goodell (2011, 2013), analyzing the stock and pension markets have come to the conclusion about the positive influence of the Catholic and Protestant faiths on the activity of market participants. The influence of religion as an institution on the level of trust in the society, property and social stratification in the society, is in the spotlight both of scientists and representatives of culture, religion and writers. For example, Tolstoy (1954) was one of the main supporters of the positive role of the church for the public. He noted the high contribution of the Church in the formation of morality and education. The similar thought was expressed by the outstanding Russian philosopher Bulgakov (1993).

It should be noted that all religious people are more likely to trust other people, more confident in the government and legal system and are less likely to break the law. Such conclusions were made by Guiso et al. (2003). Shleifer et al. (2014) and Putnam (1993). To investigate the influence of religion on trust and government income it is also interesting to refer to Coşgel and Miceli's (2009) work in which the authors argue that religion, positively influencing on citizens' confidence in the government, promotes the collection of taxes and growth of government revenues.

The correlation between religion and institutions is also documented by Hergueux (2011) by analyzing the influence of religion on foreign direct investment. Hergueux (2011) constructs a gravity model using data from 192 countries and 7 major religions (Catholicism, Protestantism, Judaism, Islam, Hinduism, Buddhism and Russian Orthodoxy). It is shown that there is a positive influence of religious diversity on foreign direct investments. Religion totally replaces the quality of formal institutions in countries with relatively weak institutions, enhancing trust and reducing the uncertainty that stimulates FDI. However, in countries with the high quality of formal institutions, the overall religiosity does not significantly influence on economic exchanges. Helble (2007) also explains the phenomenon by the fact that religion replaces weak institutions, including institutions attracting investments.

3 Measurement of Institutional Risks of Pension System

As a rule, to determine the influence of institutional factors on financial, including pension, systems, different economic and mathematical models are used. There are many indicators that quantify institutional factors for the following empirical analysis of their influence on pensions systems. Measurement of institutional factors is currently being carried out by a variety of organizations on a regular basis for the international sample of countries. The resulting indices and compiled on their basis ratings of countries (the quality ratings of their institutional systems) are published in the open access and provide wide opportunities for research of factors and pension systems interrelation. The indices of the International Country Risk Guide model developed by the PRS Group, offering a monthly ranking of 140 countries on the political, economic and financial risks have been used, for example, by Mauro (1995) in the research of the influence on investments by such an institutional factor as corruption.

The index group Worldwide Governance Indicators, developed within the framework of the World Bank research by Kaufmann et al. (2010) covering 6 major aspects of governance in 212 countries around the world, reflected the six aggregate indicators: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption. Worldwide Governance Indicators are widely used in the scientific literature to analyze the quality of governance. In particular, O'Connor et al. (2014) analyze such an institutional factor as the protection of investors' rights and for this purpose they use indices developed by Kaufmann et al. (2010).

While measuring the institutional factors which influence on pension systems, there can be used special indices, directly or indirectly characterizing the legal systems of individual countries. To measure the level of bureaucracy in the country there are generally used an indicator of government effectiveness (Government Effectiveness of the Worldwide Governance Indicators), which reflects the quality of public services, quality of the civil service and degree of its independence on political pressure, confidence in the government obligations. Another indicator, which reflects the level of bureaucracy in the country, is an index of quality of bureaucracy activity of the International Country Risk Guide model. For the same purpose there can be used the index of Business Freedom, developed by the American Institute of Heritage Foundation. This index is a quantitative measure of possibilities for opening, operating and closing of businesses that reflect the cumulative burden of regulation, as well as the effectiveness of governmental regulation of the economy.

The next institutional factor, the level of development of the judicial system, can be measure by using the indicator of the Rule of Law of the set of indices of Worldwide Governance Indicators, which reflects the perception of the degree of confidence in the rules that exist in the society, and law enforcement by members of the society, in particular, assess enforcement of contracts, protection of property

rights, police and courts, as well as the probability of crime and violence. To measure this factor there can also be used an index of Law and Order of the International Country Risk Guide Model. The index comprises two subcomponents, each of which is evaluated separately. The first subcomponent (legality) assesses the strength and impartiality the judiciary, the second (law and order)—the degree of compliance with the laws of a society.

To measure the level of corruption there is often used Transparency International's Corruption Perceptions Index, developed by the international independent research organization Transparency International. The level of corruption can also be assessed by using the anti-corruption control indicator (Control of Corruption) from the Worldwide Governance Indicators or Index of Corruption by International Country Risk Guide Model, which is an assessment of corruption in the political system. To assess the information openness and transparency of the processes taking place in the society, the index of Democratic Accountability can be used by the International Country Risk Guide Model, which measures the degree of responsibility of the government to the population.

Quantification of such institutional factors as religion is rather complicated because of the difficulties in measuring this indicator. A significant number of researches of the influence of religious beliefs on the financial system analyze narrative sources and do not use mathematical methods and models (Bespalova 1999). Some available empirical research of the religious factor (Guiso et al. 2003) is determined by estimating a number of visits to the temples and cannot always characterize religiosity and its role in the society. For quantitative assessment of religiosity some authors use such indicators as the frequency of prayers (Paul 2009), the number of followers of a religion (Hilary and Kai 2009). However, it is worth noticing that there is a scientific shortage of influence of religion on the financial systems and it is primarily connected to the lack of empirical work.

To measure institutional risks, economists usually use confidence indices, calculated on the basis of the results of research by different social surveys. So, Guiso et al. (2003) researching the confidence index and its influence on people's participation in the financial markets, analyze the influence of the following factors: confidence, origin of the right, level of income and education. The model is used to analyze the investment portfolio and is designed to assess the behavior of investors in the securities market and dependence on the level of confidence. The model is based on the assumption that the distribution of income is a true state (legal and without fraud by the partners).

Giannetti and Koskinen (2010) researching activity of the population in the financial market used the anti-director index and have come to the conclusion that it has the greatest influence on the level of community participation in investments. The anti-director index was formed by the authors on the basis of data on the influence of factors on the activity of investors. However, apart from the anti-director index while researching activity of the population in the financial market the authors take into account the influence of such institutional factors as the protection of shareholders' rights, law origin, common legal standards and quality of work of law enforcement bodies, capitalization of the stock market, and

capitalization ratio to GDP, GDP per capita. La Porta et al. (2006) came to the same conclusion. The authors analyze the anti-director index influenced by such factors as information openness requirements, the burden of proof, protection of individual rights, dominance of managers' rights, quality of the judicial system, criminal sanctions, work of public authorities. In the authors' sample there participated financial and pension organizations. Besides, La Porta et al. (1998) analyzed the influence of the court system quality, rule of law, corruption, risk of expropriation, risk of contract failure, accounting standards. With the help of correlation and regression analysis La Porta et al. (2006) came to the conclusion that for the anti-director index the most important were parameters that characterized the protection of investors' rights. It is worth noting that the Confidence Index is considered in the scientific literature as a measure of the influence of institutional risks on the individual (personal) quality of individual market participants. The index of the anti-director is analyzed as a measure of the institutional influence of risks on the macroeconomic or legal parameters of the financial markets.

4 Conclusion

Pension systems are greatly influenced by demographic, investment and institutional factors. Besides, institutional factors influence both on the distribution and funded pension systems. Institutional factors have a significant influence on business activity, investment attractiveness and financial, including pension, systems in general. Such important factors include the quality of public institutions, corruption and bureaucracy levels, legal system development level, religious beliefs and others. In particular, the low level of corruption, transparency, and effectiveness of the legal environment ensure the protection of investors' rights and has a significant influence on the investment market. A high degree of protection of property rights facilitates the growth of foreign direct investments. Moreover, an inefficient administrative system, political instability, strict regulation of economic activity and lack of economic incentives for the development of investment activity lead to a slowdown in the development of the investment market. In addition, the factor of trust has a positive and significant influence on the performance of the financial market, including pension systems. General religiosity contributes to trusting relationships, reducing the level of uncertainty. Moreover, in countries with relatively weak institutions, religion replaces the quality of formal institutions.

Thus, in the context of a dynamic external and internal environment, it is extremely important to study the institutional factors that influence pension systems for implementing a better policy regarding the implementation of pension provision for existing and future pensioners. To measure institutional risks there commonly used special indices developed by international organizations and individual authors. Public confidence indices as a measure of institutional risks are widely spread.

Acknowledgments This work was supported by the Russian Science Foundation, project no. 15-18-10014, ‘Projection of optimal socioeconomic systems in turbulence of external and internal environment’.

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Barrier Option and Floating Barrier Option: Analysis of Delta Risk

Ewa Dziawgo

Abstract The objective of the paper is present the analysis of the impact of modification the payoff function (floating barrier) on the price and the delta risk of barrier options. This paper presents the properties of the floating barrier option: the instrument's structure, pay-off functions, the effect of a change in the value of selected factors (price of the underlying instrument and floating barrier) on the price of option and the value of the delta coefficient. The article also contains a comparative analysis of the properties of standard barrier options and floating barrier options. The empirical illustration included in the paper is concerned with the pricing simulations of the currency barrier options on EUR/USD. The analysis concern the following class barrier options: down knock-in call, down knock-out call, up knock-in put and up knock-out put.

Keywords Risk management • Measures of risk • Options • Derivatives

1 Introduction

High volatility of market conditions accounts for the increase in the risk of running a business, which, in turn, causes the rise in the demand for new financial instruments which insure the investors against the unfavorable price change of the underlying instrument.

Barrier options are a special instrument in risk management. Barrier options are a path-dependent options where the final value depends on whether the underlying instrument's price reaches a certain level to expiration time of option (Ong 1996; Nelken 2000; Zhang 2001; Dziawgo 2013; Musiela and Rutkowski 1997). There are two types of barrier options: knock-in and knock-out barrier options. Knock-in options become activated if the underlying instrument's price crosses the barrier. Knock-out options become extinguished if the underlying instrument's price crosses the barrier.

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The objective of the article is analysis the impact of the modification of the pay-off function of barrier option on the formation of the price option and value of the delta coefficient. The modification of the pay-off function consists in varying the level of the barrier by introducing an exponential function.

Conducting risk analysis of used innovation financial instruments is very important in economic practice. Negative experiences of some Polish companies from the years 2008 to 2009 can be a good example of this. They suffered substantial loss as a result of incompetent use of options in financial transactions or incomprehension of the risks in the use of options. The delta coefficient is the more important measure of the option risk management.

2 Properties of the Price of the Floating Barrier Options

The floating barrier has the following form (Zhang 2001):

$$H(t) = H_0 e^{n \cdot t} \quad (1)$$

where:

$H(t)$ —floating barrier,

H_0 —constant barrier, (in time t_0), t_0 —at time t_0 an option contract is concluded,

n —rate of change of the barrier,

$t \in [0; T]$, T —time to maturity.

2.1 The Down-and-In Call Option and Down-and-Out Call Option

The down knock-in call option is called down-and-in call. However the down knock-out call option can be called down-and-out call. If $S(t) \leq H(t)$ for some t , then on the maturity date the pay-off function of the down-and-in call option takes the following form (Zhang 2001):

$$W_c = \max[S(T) - K; 0] \quad (2)$$

where:

W_c —pay-off function of the down-and-in call option,

S_T —price of the underlying instrument in time T ,

K —strike price of the option,

other designations are the same as in the formula (1).

If $S(t) > H(t)$ for all t , then on the maturity date the pay-off function of the down-and-out call option equals (Zhang 2001):

$$W_c = \max[S(T) - K; 0] \tag{3}$$

Where designations are the same as in the formula (2).

The considerations are focused on the impact of the price of the underlying instrument and rate of change of the barrier on the price of down-and-in call and down-and-out call options. These options are on EUR/USD. The strike price is 1.1 USD. The maturity time is 4 months. The simulation was carried out for the period: 20 January, 2016—20 April, 2016. The strike price is higher than the barrier.

Figure 1 shows the shaping of the price of down-and-in call options. These options differ by rate of change of the barrier. If the rate of change of the barrier equals 0, then the option is called standard barrier option. The Table 1 presents the impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the price analyzed options.

The following properties of the down-and-in call option result from the analysis of the shaping of the price:

- the increase in the price of the underlying instrument influences the decline in the price of the option,
- the decrease in the price of the underlying instrument influences the growth in the price of the option,
- the approaching of the price of the underlying instrument to the barrier will cause the significant increase in the price of options (particularly the price option with negative rate of change of the barrier),
- the increase in the rate of change of the barrier contributes to the increase in the price of options.

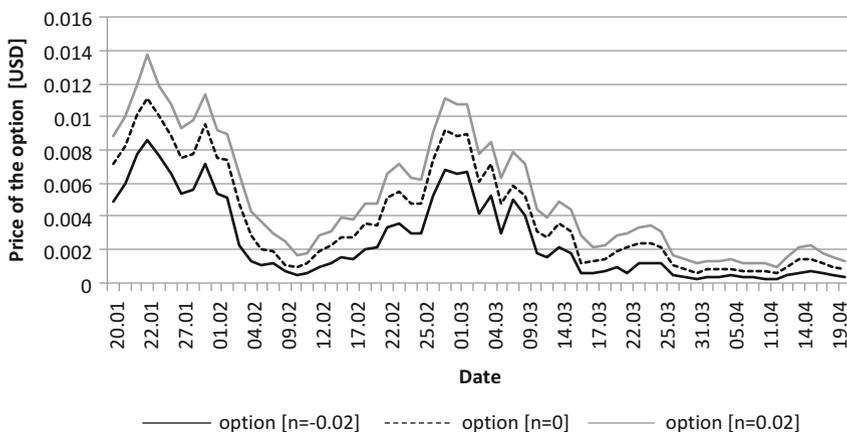


Fig. 1 Changes in the price of down-and-in call options. Options differ by rate of change of the barrier. Source: Elaborated by the author based on own calculations

Table 1 The impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the price of down-and-in call options

The price of the underlying instrument [USD]	The price option [USD] rate of change of the barrier $n = -0.02$	The price option [USD] rate of change of the barrier $n = 0$	The price option [USD] rate of change of the barrier $n = 0.02$
1.09	0.0059	0.0073	0.0089
1.10	0.0033	0.0052	0.0067
1.11	0.0018	0.0032	0.0045
1.12	0.0010	0.0020	0.0029
1.13	0.0005	0.0011	0.0018
1.14	0.0002	0.0006	0.0011

Source: Elaborated by the author based on own calculations

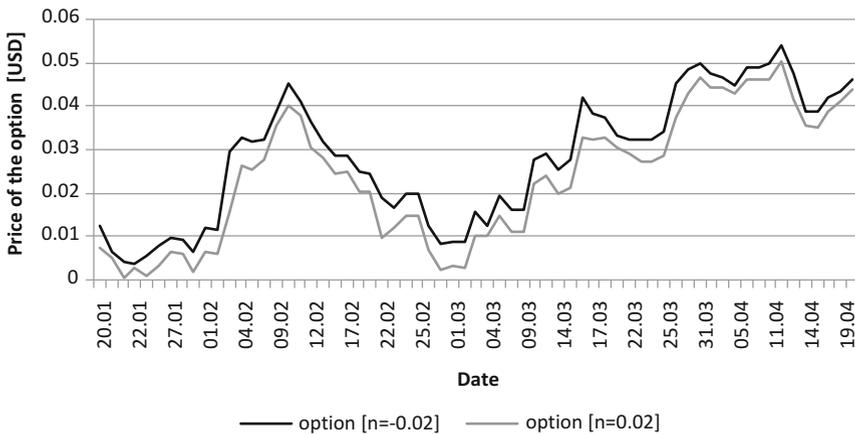


Fig. 2 Changes in the price of down-and-out call options. Options differ by rate of change of the barrier. Source: Elaborated by the author based on own calculations

Figure 2 illustrates the changes in the price of down-and-in call options. Options differ by rate of change of the barrier. The Table 2 demonstrates the impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the price discussed options.

The price analysis shows that the decrease in the rate of change of the barrier results in the rise in the price of the down-and-out call option. In the case of the increase in the price of the underlying instrument, the price of option increases. The decrease in the price of the underlying instrument influences the decline in the price of the option. If the price of the underlying instrument approximates the barrier, then the prices of the option with greater rate of change of the barrier tend to drop more dramatically.

Table 2 The impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the price of down-and-out call options

The price of the underlying instrument [USD]	The price option [USD] rate of change of the barrier $n = -0.02$	The price option [USD] rate of change of the barrier $n = 0$	The price option [USD] rate of change of the barrier $n = 0.02$
1.09	0.0093	0.0061	0.0032
1.10	0.0176	0.0152	0.0133
1.11	0.0242	0.0229	0.0204
1.12	0.0328	0.0310	0.0299
1.13	0.0399	0.0383	0.0365
1.14	0.0494	0.0480	0.0456

Source: Elaborated by the author based on own calculations

2.2 The Up-and-In Put Option and Up-and-Out Put Option

The up knock-in put option is called up-and-in put and the up knock-out put option can be called up-and-out put. If $S(t) \geq H(t)$ for some t , then on the maturity date the pay-off function of the up-and-in put option is described by the formula (Zhang 2001):

$$W_p = \max[K - S(T); 0] \quad (4)$$

where:

W_p —pay-off function of the up-and-in put option, other designations are the same as in the formula (2).

If $S(t) < H(t)$ for all t , then on the maturity date the pay-off function of the up-and-out put option is set by the equation (Zhang 2001):

$$W_p = \max[K - S(T); 0] \quad (5)$$

where: designations are the same as in the formula (4).

The considerations are focused on the impact of the price of the underlying instrument and rate of change of the barrier on the price of on the price of up-and-in put and up-and-out put options. Analyzed options differ by rate of change of the barrier. Options are on EUR/USD. The strike price is 1.1 USD. The maturity time is 4 months. The simulation was carried out for the period: 20 January, 2016—20 April, 2016. The strike price is lower than the barrier.

Figure 3 shows the shaping of the price of up-and-in put options. The Table 3 presents the impact of the price of the underlying instrument and rate of change of the barrier on the forming of the price discussed options.

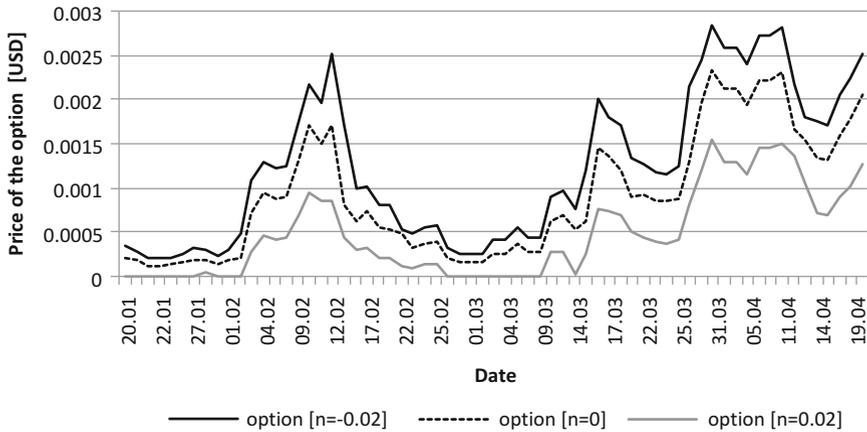


Fig. 3 Changes in the price of up-and-in put options. Options differ by rate of change of the barrier. Source: Elaborated by the author based on own calculations

Table 3 The impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the price of up-and-in put options

The price of the underlying instrument [USD]	The price option [USD] rate of change of the barrier $n = -0.02$	The price option [USD] rate of change of the barrier $n = 0$	The price option [USD] rate of change of the barrier $n = 0.02$
1.09	0.0026	0.0017	0.0007
1.10	0.0034	0.0023	0.0012
1.11	0.0043	0.0031	0.0020
1.12	0.0054	0.0041	0.0028
1.13	0.0065	0.0052	0.0040
1.14	0.0088	0.0071	0.0053

Source: Elaborated by the author based on own calculations

Price analysis confirms that:

- the increase in the price of the underlying instrument influences the growth in the price of the up-and-in put option,
- the decrease in the price of the underlying instrument influences the decline in the price of the up-and-in put option,
- if the price of the underlying instrument tends to barrier, then the price of option significantly increases. (particularly option with negative rate of change of the barrier),
- the increase in the rate of change of the barrier has the affect on the decrease in the price of the up-and-in put option.

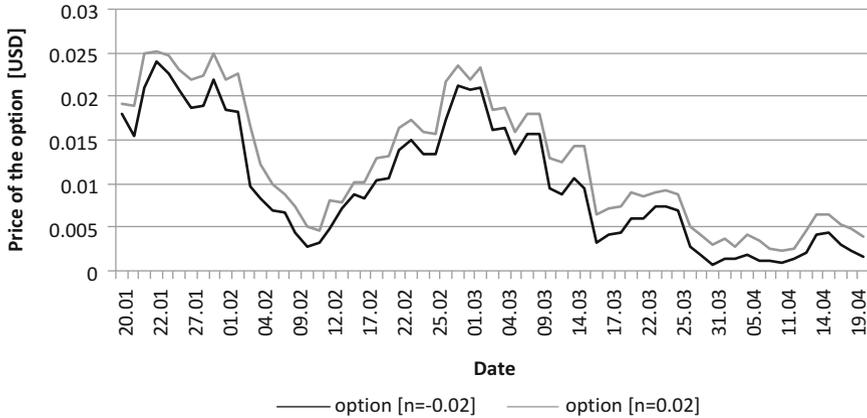


Fig. 4 Changes in the price of up-and-out put options. Options differ by rate of change of the barrier. Source: Elaborated by the author based on own calculations

Table 4 The impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the price of up-and-out put options

The price of the underlying instrument [USD]	The price option [USD] rate of change of the barrier $n = -0.02$	The price option [USD] rate of change of the barrier $n = 0$	The price option [USD] rate of change of the barrier $n = 0.02$
1.09	0.0152	0.0179	0.0193
1.10	0.0131	0.0148	0.0176
1.11	0.0085	0.0108	0.0138
1.12	0.0052	0.0077	0.0109
1.13	0.0033	0.0054	0.0087
1.14	0.0004	0.0032	0.0057

Source: Elaborated by the author based on own calculations

Figure 4 illustrates the development of the price of the up-and-out put options. The Table 4 presents the impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the price analyzed options.

Price analysis proves that the increase in the rate of change of the barrier results in the rise in the price of the down-and-out put option. The increase in the price of the underlying instrument affects the drop in the price of option. However, the decrease in the price of the underlying instrument influences the growth in the price of the option. When the price of the underlying instrument approaches the barrier, there is a more dramatically decrease in the prices of the option with negative rate of change of the barrier.

3 Delta Coefficient of the Floating Barrier Options

The delta coefficient is a measure of sensitivity determining the impact of the price of the underlying instrument on the option price. The delta is one of the most important risk measures of the option's price. The delta coefficient indicates by how much an option's price will change when the price of the underlying instrument changes by one unit. A positive delta value means that an increase/decrease in the price of the underlying instrument impacts the rise/fall in the price of option. However, if the delta coefficient is negative, then an increase/decrease in the price of the underlying instrument causes a decrease/increase in the option price. If the option has a greater absolute value of the delta coefficient, then the increase sensitivity of the price of the option to fluctuations in the price of the underlying instrument can be observed (Dziawgo 2010; Dziawgo 2003; Hull 2005; Wilmott 1998).

3.1 Delta Coefficient of the Down-and-In Call Option and the Down-and-Out Call Option

Table 5 presents the impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the delta coefficient for discussed down-and-in call options. However, the Table 6 shows the impact of the price of the underlying instrument and rate of change of the barrier on the development of the delta coefficient for down-and-out call options.

The delta coefficient of down-and-in call options is negative. The increase in the price of the underlying instrument contributes to the decrease in the absolute value of the delta coefficient of the down-and-in call options. Then the option is the less sensitive to a change in the price of the underlying instrument. The option with a greater rate of change of the barrier is characterized by a greater absolute value of the delta coefficient. This reflects a greater sensitivity of the price of this option to

Table 5 The impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the delta coefficient of down-and-in call options

The price of the underlying instrument [USD]	Delta of option rate of change of the barrier $n = -0.02$	Delta of option rate of change of the barrier $n = 0$	Delta of option rate of change of the barrier $n = 0.02$
1.09	-0.3132	-0.4589	-0.5332
1.10	-0.2529	-0.3414	-0.3987
1.11	-0.2103	-0.2631	-0.2945
1.12	-0.1672	-0.2139	-0.2699
1.13	-0.1324	-0.1389	-0.1599
1.14	-0.1012	-0.1094	-0.1105

Source: Elaborated by the author based on own calculations

Table 6 The impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the delta coefficient of down-and-out call options

The price of the underlying instrument [USD]	Delta of option rate of change of the barrier $n = -0.02$	Delta of option rate of change of the barrier $n = 0$	Delta of option rate of change of the barrier $n = 0.02$
1.09	0.8542	0.8815	0.9216
1.10	0.8126	0.8497	0.8767
1.11	0.7696	0.8193	0.8552
1.12	0.7274	0.7951	0.8412
1.13	0.6945	0.7827	0.8483
1.14	0.6755	0.7733	0.8387

Source: Elaborated by the author based on own calculations

the change in the price of the underlying instrument. When the price of the underlying instrument approximates the barrier, there is the significant increase in the absolute values of the delta coefficient. Then the price of the option has a greater sensitivity to changes in the price of the underlying instrument.

The delta coefficient of down-and-out call options takes positive values. The highest value of the delta coefficient observed in the case when the price of the underlying instrument tends to the barrier. Then the options are the most sensitive to a change in the price of the underlying instrument. The option with greater rate of change of the barrier has the highest value of the delta coefficient. Therefore, this option has the greater sensitivity to fluctuations in the price of the underlying instrument. The increase/decrease in the price of the underlying instrument impacts the fall/rise in the value of delta coefficient.

3.2 *Delta Coefficient of the Up-and-In Put Option and the Up-and-Out Put Option*

Table 7 illustrates the impact of the price of the underlying instrument and rate of change of the barrier on the formation of the value of the delta for discussed up-and-in put options. However, the Table 8 shows the impact of the price of the underlying instrument and rate of change of the barrier on the development of the value of the delta coefficient for analyzed up-and-out put options.

The delta coefficient of up-and-in put options is positive. The increase in the price of the underlying instrument influences the growth in the value of the delta coefficient of the up-and-in put options. The increase in the rate of change of the barrier impacts the significant fall value of the delta coefficient. Therefore, the price of option with a smaller rate of change of the barrier is less sensitive to fluctuations in the price of the underlying instrument. When the price of the underlying instrument approaches the barrier, there is the rise in the value of the delta

Table 7 The impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the delta coefficient of up-and-in put options

The price of the underlying instrument [USD]	Delta of option rate of change of the barrier $n = -0.02$	Delta of option rate of change of the barrier $n = 0$	Delta of option rate of change of the barrier $n = 0.02$
1.09	0.0567	0.0444	0.0197
1.10	0.0785	0.0579	0.0246
1.11	0.1041	0.0740	0.0299
1.12	0.1333	0.0924	0.0357
1.13	0.1699	0.1230	0.0719
1.14	0.2123	0.1641	0.1085

Source: Elaborated by the author based on own calculations

Table 8 The impact of the price of the underlying instrument and rate of change of the barrier on the shaping of the delta coefficient of up-and-out put options

The price of the underlying instrument [USD]	Delta of option rate of change of the barrier $n = -0.02$	Delta of option rate of change of the barrier $n = 0$	Delta of option rate of change of the barrier $n = 0.02$
1.09	-0.5907	-0.5712	-0.4867
1.10	-0.5134	-0.4975	-0.4029
1.11	-0.4427	-0.4251	-0.3305
1.12	-0.3781	-0.3655	-0.2648
1.13	-0.3347	-0.3276	-0.2157
1.14	-0.3117	-0.2475	-0.1789

Source: Elaborated by the author based on own calculations

coefficient and thus there is also the increase in the sensitivity of the price of options to the change of the price of the underlying instrument.

The delta coefficient of up-and-out put options takes negative values, which means that the increase/decrease in the price of the underlying instrument influences the decline/growth in the price of the option. The increase/decrease in the price of the underlying instrument contributes to the fall/rise in the absolute value of the delta coefficient of the up-and-in put options. With the rising rate of change of the barrier, the absolute value of the delta coefficient decreases. This reflects the less sensitivity of the price of the option with greater rate of change of the barrier to the change in the price of the underlying instrument.

4 Conclusion

By modifying the pay-off function of barrier options it is possible to impact significantly changes in the options price and its sensitivity to risk factors and, therefore, make options a more attractive instrument for hedging and speculative

transactions. As a result of the modification the pay-off function of barrier options, a financial product with a higher degree of complexity is obtained, which allows us to develop a more precise security of the implemented investment to reach the expected volatility of the underlying instrument.

The floating barrier is factor that significantly influence on the option price and its sensitivity. The floating barrier options allow you to increase the precision of the security of the investment being implemented to the expected volatility of the price of the underlying instrument.

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Perspectives on Internal Control and Enterprise Risk Management

İdil Kaya

Abstract Grounded on the literature review on Enterprise Risk Management (ERM) this paper aims to analyze the extent and the effectiveness of internal control as well as ERM and to explore their connection with the value creation. A theoretical lens is used to discuss whether effective internal control and ERM enhance performance and increase value creation ability. ERM is most frequently defined with the reference to the 2004 Guidance document published by Committee of Sponsoring Organizations of Treadway Commission (COSO). Proponents of COSO's ERM Integrated Framework describe this framework as "a world-level template for best practice", and claim that ERM used by management to enhance an organization ability to manage uncertainty and to consider how much risk to accept as it strives to increase stakeholder value. Additionally the Internal Control—Integrated Framework is a viable and suitable framework for designing, implementing, conducting and assessing the effectiveness of internal control and for reporting. The relationship between value creation and ERM is widely investigated in academic literature. Empirical studies on the value creation abilities of ERM and internal control suggest that there is a positive relation between value creation, internal control and ERM. These studies reveal that firm performance and value are enhanced by high-quality ERM adoption and implementation. Using different identifier of ERM such as Standard and Poor's risk management ratings or presence of a Chief Risk Officer, the findings of empirical studies reveal that higher ERM quality is associated with less resource constraint, better corporate governance and better accounting performance. Additionally academic studies indicate that the risk-based communication is reinforced with ERM implication.

Keywords Enterprise risk management • Internal control • Value creation

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© Springer International Publishing AG 2018

M.H. Bilgin et al. (eds.), *Eurasian Business Perspectives*, Eurasian Studies in Business and Economics 8/1, https://doi.org/10.1007/978-3-319-67913-6_26

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1 Introduction

Changing business and operating environments, increased competition, technology driven, global scale and complex structure of companies have increased the importance of effective internal control and risk management. Enterprise risk management (ERM) is a process that is viewed today as an indicator for optimal achievement of companies' mission and execution of its strategy. This is also a coping mechanism vis-à-vis new demand for reporting purposes and additional compliance mandate placed on organizations to have effective internal control and risk management. Rating agencies e.g. Standard & Poor's have included ERM assessment in ratings of insurance companies since 2007. Furthermore the stakeholders' demand for more transparency and accountability on the business decisions and governance forces enterprises to have effective internal control and ERM.

Committee of Sponsoring Organizations of Treadway Commission (COSO) has released two frameworks provide guidance for management in implementing and evaluating effective enterprise risk management and internal control processes, leading to the improvement of organizational performance and governance. These are COSO's Internal Control—Integrated Framework and COSO's Enterprise Risk Management—Integrated Framework.

COSO guidance is recognized as being globally and its integrated frameworks are viewed as being the principal tools that enable organizations to enhance their capacity in dealing with uncertainty that presents both risk and opportunity with the potential to erode or enhance value.

Proponents of COSO's ERM Integrated Framework describe this framework as "a world-level template for best practice", and claim that ERM used by management to strengthen an organization ability to manage uncertainty and to consider how much risk to accept as it strives to increase stakeholder value. Additionally the Internal Control—Integrated Framework is a viable and suitable framework for designing, implementing, conducting and assessing the effectiveness of internal control and for reporting. COSO's principal argument is that the essential prerequisites of firms' long term success are good risk management and internal control (DeLoach and Thomson 2014).

While internal control has been always an important field for internal and external audit, risk management has been a vital concern on the fields of finance and insurance but it is received widespread attention following accounting and corporate scandals in the beginning 2000s and 2008 global crisis (Wu et al. 2015). Section 404 of Sarbanes-Oxley Act and its impacts and repercussions on global capital markets have put the spotlight on COSO's Internal Control Framework and the recent economic crisis has heightened considerably the importance of ERM (Landsittel and Rittenberg 2010).

Grounded on the literature review on ERM this paper aims to analyze the extent and the effectiveness of internal control as well as ERM and to explore their connection with the value creation. A theoretical lens is used to discuss whether effective internal control and ERM enhance performance and increase value creation ability. The remainder of the paper is presented in three sections. Section 2 expands upon the COSO Integrated Frameworks. This is followed by the related

literature that provides an overview of empirical research findings on internal control and enterprise risk management. The fourth and final section provides a conclusion providing some final comments.

2 COSO Integrated Frameworks

Whether applied individually or together, COSO frameworks are the principal guidance used by organizations to address internal and external pressures placed on them to have effective internal control and risk management. Originally formed in 1985, COSO is voluntary private sector initiative dedicated to improve organizational performance and governance through effective internal control, enterprise risk management, and fraud deterrence. Its sponsoring organizations are the Institute of Internal Auditors, the American Accounting Association, and the American Institute of Certified Public Accountants, Financial Executives International, and the Institute of Management Accountants.

COSO’s first Internal Control Framework is released in 1992 and is admitted widely as a recognized standard for developing and maintaining effective and efficient internal control. On May 14, 2013, as a result of multiyear project, COSO updated this Framework to include enhancements and clarifications for users.

COSO (2013a, p. 3) defines internal control as “a process, affected by an entity’s board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories:

- Effectiveness and efficiency of operations
- Reliability of financial reporting
- Compliance with applicable laws and regulations”.

There is a growing support for the general argument that the effectiveness of internal control is a crucial and challenging system for organizations. COSO’s Internal Control Framework is developed in expecting to help and support organizations to design, implement, conduct and assess these systems of internal control. Components, objectives and entity levels presented three dimensions of internal control. These are presented in Table 1.

Table 1 Three dimensions of internal control

Components	Objectives	Organizational levels
Control environments	Operations	Entity level
Risk assessment	Reporting	Division
Control activities	Compliance	Operating unit
Information and communication		Function
Monitoring activities		

Source: COSO (1992)

The strength of the internal control system is to improve organizations' achievements of their objectives through providing effectiveness and efficiency of their operations, reliability of their financial reporting and compliance with applicable laws and regulations. Internal control system needs to be assessed regularly to check its effectiveness. There are 17 relevant principles associated with the internal components. These are presented in Table 2.

Another area that COSO provides guidance is risk management that organizations need to effectively deal with uncertainty for optimal achievement of their mission and execution of their strategy. ERM Integrated Framework is developed as a process, ongoing and flowing through the enterprise that comprises aligning risk appetite and strategy, improving risk responses of the entity and seizing opportunities. According to Arnold et al. (2015), this strategic approach to the risk management concentrates on the opportunity side of risk identification and response.

ERM is defined by COSO (2004, p. 4) as "a process, affected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity,

Table 2 Principles of internal control

17 Principals by internal control components
Control environment
1. Commitment to integrity and ethical values
2. Oversight of the development and performance of internal control
3. Establishment of structures, reporting, authorities and responsibilities
4. Commitment to competence
5. Accountability
Risk assessment
6. Suitable objectives
7. Risk identification and analysis
8. Assessment of fraud risk
9. Identification and analysis of significant change
Control activities
10. Selection and development of control activities
11. Selection and development of general controls over technology
12. Deployment through policies and procedures
Information and communication
13. Use of relevant information
14. Internal communication
15. External communication
Monitoring
16. Conduct of ongoing and/or separate evaluations
17. Evaluation and communication of deficiencies

Source: COSO (2013b) Internal Control Integrated Framework Poster, www.coso.org

and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of the entity’s objectives”. Internal control is an integral part of ERM.

COSO’s ERM Framework (2004) and its new exposure draft emphasize that where properly implemented and executed ERM enables organizations to grow shareholder’s value through facilitating management’s ability deal effectively with uncertainty and enhancing the ability to communicate value creation. The COSO’s three dimensional model of ERM that is similar to its Internal Control Framework is presented in Table 3.

COSO’s ERM model allows managers to understand and assess risks from a total enterprise perspective rather than a silo-based approach (Moeller 2007, 2011). This is a portfolio view of risk in which risks are considered in terms of total organization, whether it is related to strategy, governance, human resources, IT systems or supply chains. Considering risks on a total enterprise level enables organizations to obtain systematic comprehension of the interdependencies and correlations among risks (McShane et al. 2011). The ERM’s approach consists of identification of all possible risks and the choice of right risk response within the risk appetite (Soltanizadeh et al. 2016). Through integrated decision making across all risk classes, ERM allows detecting the risks inherent in different business activities and provides a more objective basis for capital allocation (Hoyt and Liebenberg 2015) It differs from traditional risk management in the way that it manages risk in a portfolio view rather than independently. ERM is designed to identify and classify all risks that organization faces and to create one internal risk management system (Jabbour and Abdel-Kader 2015). Furthermore, Hoyt and Liebenberg (2015) assert that this holistic approach helps organization to reduce earnings volatility as well as cash flow volatility by accomplishing the net effects of all the significant risks.

COSO’s frameworks give description of fundamental components and propose a common language; and they are intended to be integrated within the governance and management. The presence of eight components and their proper functioning are fundamental factors for the ERM’s capabilities in an organization. These interrelated components are presented in Table 4. In this

Table 3 Three dimensions of ERM

Components	Objectives	Organizational levels
Internal environments	Strategic	Entity level
Objective setting	Operations	Division
Event identification	Reporting	Business unit
Risk assessment	Compliance	Subsidiary
Risk response		
Control activities		
Information and communication		

Source: COSO (2004)

Table 4 COSO's ERM framework components and their interrelations

ERM components
1. Internal environment – commitment to competence – discipline – governance structures within the risk culture of the organization
↓
2. Linking performance objectives to the strategic objectives
↓
3. Event identification
↓
4. Risk assessment
↓
5. Risk responses for all events within the firm risk appetite based on an appropriate risk assessment
↓
6. Control activities to assure that risk responses are effectively carried on
7. Information and communication
↓
8. Monitoring

Source: O'Donnell (2005)

multidimensional process, eliminating material weaknesses and bringing risk within the enterprise's risk appetite are the main features of ERM. Qualitative and quantitative risk assessment can be carried using Likert Scales or financial and economic measures. Risk maps, risk scoreboards, key risk indicators and risk measures are used to report evaluation of risks for internal and external purposes (Arena et al. 2010).

DeLoach and Thomson (2014) insist that COSO frameworks are designed to provide value to the governance, strategy setting, business planning, execution, monitoring and adapting processes of an enterprise. ERM and internal control are said to create a common language to communicate more effectively in all level of an entity's activities, from strategy setting to operations. Furthermore this process is said to assist to decrease volatility in stock price and earnings and external capital cost.

Nevertheless ERM implementation imposes financial, human resources and IT systems that in turn augment costs (McShane et al. 2011; Gatzert and Martin 2015). Additionally, Lundqvist (2014) argued that the implementation of ERM requires considerable time resources and commitment.

To conclude this section, professional literature asserts that ERM increases value, trust and credibility and improves risk-based communication, internal reporting and management systems. Next section aims to highlight the focus of the academic literature on the internal control and ERM and their connection with the value creation.

3 Empirical Researches on Internal Control and ERM

ERM and internal control is a fast growing area of interest in the academic research. Empirical studies use public information or survey data for measuring ERM implementation and majority of these studies have positive findings on the relationship of value creation and ERM.

Different measures are used in empirical studies of internal control and ERM. Tobin's Q ratio is the most commonly used as proxy for firm value in empirical risk management studies. This widely used ratio compares the market value of a firm's assets to their replacement cost (Hoyt and Liebenberg 2011, 2015). It is usually calculated as the market value of equity plus the book value of liabilities divided by the book value of assets (Hoyt and Liebenberg 2011; McShane et al. 2011). Beasley et al. (2008) examine equity market reactions to announcements of appointments of senior executive officers overseeing the ERM processes.

Researchers use also different measures for the identification of ERM practices in a firm. The existence of a Chief Risk Officer (CRO) position or similarly a senior risk officer is widely used as an identifier of ERM implication (Lundqvist 2014; Beasley et al. 2008; Hoyt and Liebenberg 2011; Liebenberg and Hoyt 2003; Pagach and Warr 2011). In several studies, firms have been asked directly through survey about their level of ERM implementation (Beasley et al. 2005). Risk management ratings from S&P are also used by many empirical studies (McShane et al. 2011). S&P ratings are said to be more sophisticated and comprehensive measure of ERM (Lundqvist 2014).

Gordon et al. (2009) create an ERM index; variable data are collected from publicly available information, for example: sales, number of employees, material weakness disclosures, announcements of financial restatements, and auditor fees. The findings of this study suggest that the connection between ERM and firm performance is related to the proper match between ERM and firm level factors. These factors are the contextual variables surrounding the firm such as environment uncertainty, industry competition, firm complexity, and monitoring by Board of Directors.

Razali et al. (2011) examined the determinants of ERM adoption in Malaysian Public Listed Companies and they found that firms with high turnover, appointing CRO and not diversifying internationally seem to adopt ERM. Lundqvist (2014) distinguished four components or pillars of ERM to measure how firms implement ERM dimensions. The first pillar is the general internal environment and objective setting; the second pillar is the general control activities, information and communication; the third one is the holistic organization of risk management; and finally the fourth pillar is the specific identification and risk assessment activities. According to the author, a well implemented ERM must have all four pillars; but only the third one separates ERM from non-ERM companies.

According to DeLoach and Thomson (2014), the COSO ERM framework enhances risk-focused communication that comprises the issues relevant to improving governance, assessing risk, designing risk responses and control activities,

facilitating relevant information and communication flows, and monitoring ERM and internal control performance. Baxter et al. (2013) pointed also the positive aspects of ERM; and they found that “higher quality ERM is associated with better corporate governance (i.e., audit committees charged with direct oversight of risk), less audit-related risk (i.e., stable auditor relationships and effective internal controls), presence of risk officers/committees, and boards with longer tenure” (Baxter et al. 2013, p. 1265).

O’Donnell (2005) developed a theoretical understanding of how and when ERM facilitates value chain activities. Paape and Speklé (2012) investigated risk management effectiveness of COSO Frameworks for the mechanistic view on risk appetite and tolerance. Liebenberg and Hoyt (2003) found that financial leverage is positively associated with ERM implementation, but using a broader set of indicators, Hoyt and Liebenberg (2011) found that ERM has a negative relation to leverage. According to Liebenberg and Hoyt (2003), a major obstacle to empirical research in ERM is the difficulty in identifying firms engaging in ERM. Firms typically do not disclose whether they are managing risks in an integrated manner.

Grace et al. (2015) investigated specific aspects of ERM’s value creation in insurance companies and they found that ERM practices significantly increase costs and revenues efficiency and they documented the impact of board involvement on reducing firm costs and augmenting firm value.

Beasley et al. (2005) pointed the positive relationship between ERM implication and the presence of CRO, board independence, audit by Big Four accounting firms and entity size; they also suggest that the implication stage is positively related to the banking, education, and insurances industries. Lundqvist (2015) suggests that stakeholders’ desires for better governance of the risk management system place the pressures on firms to implement ERM.

Based on the study of equity market reactions to the hiring of CRO’s Beasley et al. (2008) suggest that they cannot make any board claims about benefits and costs of ERM since they find no significant market responses to the announcements of appointments of CRO’s. Nevertheless they assert that the benefits of ERM differ across companies and depend on certain firm-level factors. Earnings volatility, low amounts of leverage and low amounts of cash on hands have positive reactions to ERM implementation. They found that these specific benefits are related to nonfinancial firms, but not for financial firms.

McShane et al. (2011) examined the relationship between risk management and firm value using S&P’s ERM ratings. They found a positive relationship between firm value and increasing level of traditional risk management but not for a higher ERM rating. Their findings suggest that firm value augments as firms implement increasingly more sophisticated traditional risk management but does not augment further as firms attain ERM.

Arnold et al. (2011) investigated ERM and organizational structure from a strategic management perspective in the context of Sarbanes Oxley Act’s section 404 requirements by companies. They found a powerful relationship between the strength of ERM processes and organizational flexibility and this relation is mediated by the level of IT compatibility. Furthermore, Arnold et al. (2015) found that

ERM have a positive impact on supply chain performance and they imposed a theoretical understanding of ERM's impact on the values chain activities.

To conclude this section, empirical studies on the value creation abilities of ERM and internal control present in general positive findings. Most of the studies found positive relation between value creation, internal control and ERM. These studies reveal that firm performance and value are enhanced by high-quality ERM adoption and implementation. The studies which use Standard and Poor's risk management ratings, reveal that higher ERM quality is associated with less resource constraint, better corporate governance and better accounting performance. Beside these findings some researchers assert that there is no evidence that application of the COSO frameworks improve risk management and internal control effectiveness. Neither do they find a support for value creation ability of these frameworks. There are still some questions to be posed and answered by researchers on the effectiveness and efficiency of internal control and ERM.

4 Conclusion

Internal control and ERM effectiveness is crucial to identify events that may impact the organization's well-being and erode the shareholder's value and respond to identified risks. New demand for reporting purposes and additional compliance mandate placed on organizations to have effective internal control and risk management have enhanced the role and importance of ERM. COSO frameworks are the principal guidance used by organizations to address the issues relevant to improving governance, strategy setting, business planning, and execution, monitoring and adapting processes of an enterprise.

Over the past years, a substantial body of academic research on internal control and ERM has developed on the search of empirical evidence on whether and how they affect corporate values. These studies have generated a number of findings that should be of interest to the development of risk management in companies. Understanding how academic literature assesses internal control and ERM practices has significant value. Also important is the recognition that the role of risk managers is crucial for companies that are positioned to strategically align their goals of main stakeholders.

Empirical researches support the significance and importance of the ERM practices on providing value for shareholders in an environment where the stakeholders are increasingly demanding for more transparency and accountability on the business decisions and governance. Additionally academic studies indicate that the risk-based communication is reinforced with ERM implication.

Acknowledgement The author is grateful for the support provided by Galatasaray University Research Fund. This work was supported by Galatasaray University Research Fund [grant number 16.102.002].

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