TAL TECH

DOCTORAL THESIS

Essays on Bank Governance and Mutual Fund Performance

Triinu Tapver

TALLINNA TEHNIKAÜLIKOOL
TALLINN UNIVERSITY OF TECHNOLOGY
TALLINN 2022

TALLINN UNIVERSITY OF TECHNOLOGY
DOCTORAL THESIS
73/2022

Essays on Bank Governance and Mutual Fund Performance

TRIINU TAPVER

TAL TECH PRESS

TALLINN UNIVERSITY OF TECHNOLOGY
School of Business and Governance
Department of Economics and Finance
This dissertation was accepted for the defence of the degree 11/11/2022

Supervisor: Associate Professor Laivi Laidroo, PhD
School of Business and Governance
Tallinn University of Technology
Tallinn, Estonia

Co-supervisor: Associate Professor Karin Jõeveer, PhD
School of Business and Governance
Tallinn University of Technology
Tallinn, Estonia

Opponents: Professor Bert Scholtens, PhD
Faculty of Economics and Business
University of Groningen
Groningen, Netherlands

School of Management
University of St Andrews
St Andrews, United Kingdom

Associate Professor Rients Galema, PhD
School of Economics
Utrecht University
Utrecht, Netherlands

Defence of the thesis: 20/12/2022, Tallinn

Declaration:
Hereby I declare that this doctoral thesis, my original investigation and achievement, submitted for the doctoral degree at Tallinn University of Technology has not been submitted for doctoral or equivalent academic degree.

Triinu Tapver

---
signature

European Union
European Regional
Development Fund

Investing
in your future

ISSN 2585-6898 (publication)
ISBN 978-9949-83-933-9 (publication)
ISSN 2585-6901 (PDF)
ISBN 978-9949-83-934-6 (PDF)
Printed by Koopia Niini & Rauam

TALLINNA TEHNIKAÜLIKOOL
DOKTORITÖÖ
73/2022

Uurimused pankade valitsemisest ja investeerimisfondide tulemuslikkusest

TRIINU TAPVER

TAL TECH KIRJASTUS

Contents

List of Publications

The list of author's publications, on the basis of which the thesis has been prepared:

I Tapver, T. (2019). CSR reporting in banks: does the composition of the board of directors matter? *Quantitative Finance and Economics*, Vol. 3, No. 2, 286-314. DOI: https://doi.org/10.3934/QFE.2019.2.286 (ETIS 1.1)

II Tapver, T., Laidroo, L. and Gurvitš-Suits, N.A. (2020). Banks' CSR reporting – Do women have a say? *Corporate Governance: The International Journal of Business in Society*, Vol. 20, No. 4, 639-651. DOI: https://doi.org/10.1108/CG-11-2019-0338 (ETIS 1.1)

III Tapver, T. (2022). Luck and skill in the performance of global equity funds in Central and Eastern Europe. *Managerial Finance*, ahead-of-print. DOI: https://doi.org/10.1108/MF-01-2022-0051 (ETIS 1.1)

Author's contribution to the Publications

Contribution to the papers in this thesis are:

I The author of the thesis is the sole author of the publication.

II The author of the thesis had a leading role in writing the publication, including developing the theoretical framework, systemising the literature, collecting and analysing the data, running the estimations, presenting the results, conclusions and contributions, and acted as the corresponding author in publishing process.

III The author of the thesis is the sole author of the publication.

Introduction

Financial intermediaries perform essential functions for the economy as they channel capital to markets and influence saving decisions. In providing their services, they take in funds from savers and allocate them to others. This leaves financial intermediation and economic growth inextricably linked, as many theoretical models suggest (see for example Bencivenga and Smith, 1991; Greenwood and Jovanovic, 1990; King and Levine, 1993). Not long ago, Gorton and Winton (2003) emphasised that the focus in explaining the traditional nature of financial intermediaries has shifted towards exploring why these institutions exist and how they shape modern financial markets. More precisely, they claim that "the savings-investment process, the workings of capital markets, corporate finance decisions, and consumer portfolio choices cannot be understood without studying financial intermediaries" (Gorton and Winton, 2003, p. 431).

As can be seen in Figure 1, banks and mutual funds are the largest and most visible financial intermediaries and have an extensive impact on the economy. Bank assets were equal to around 63 per cent of global GDP in 2019 for example, and mutual fund assets were around 161 per cent. The same figures for the OECD were 98 per cent for banks and 286 per cent for mutual funds. In comparison, the assets of other financial intermediaries, including insurance companies, nonbank financial institutions, and pension funds, are a considerably smaller share of GDP.

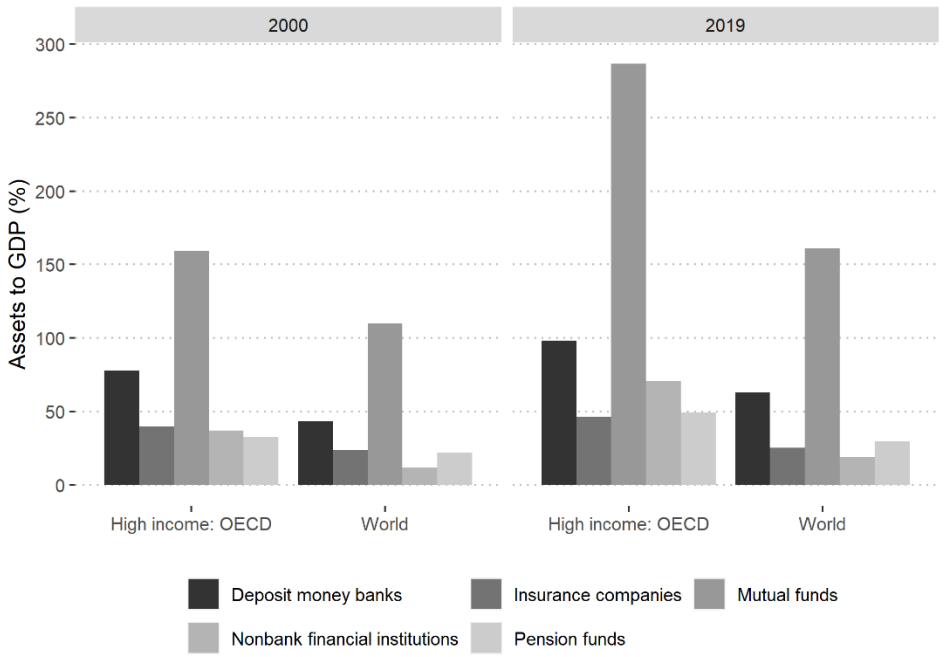


Figure 1. Financial intermediaries' assets to GDP, regional averages.
Source: World Bank, Global Financial Development [Data set]. Indicator codes GFDD.DI.02; GFDD.DI.11; GFDD.DI.07; GFDD.DI.03; GFDD.DI.13.

Banks carry the key role in steering the overall health of the economy, as their activities and their prosperity are reflected in other sectors. The 2008 financial crisis is clear evidence of this. Problems that arose from failures in the corporate governance practices of banks largely triggered the economic collapse (for a review see Kirkpatrick,

2009). The quality of information available to investors and the board was not sufficient for them to be able to assess valuations and riskiness properly. Combined with poor corporate governance practices, this led to large losses for shareholders (Acharya et al., 2009). This induced a general move towards sustainability in all its aspects, and this is increasingly stressed and integrated into shareholder interests alongside financial criteria (see for example Laugel and Laszlo, 2009). Particular emphasis is given to the ability of banks to meet challenges to their sustainability and subsequently to disclose information to shareholders. A lesson was learned from the 2008 financial crisis, and extensive regulations on bank governance and disclosures, including disclosures on sustainability, have been introduced (see for example Basel Committee on Banking Supervision, 2010). Governance regulations most commonly address the composition of the boards of banks, because these have an important strategic and monitoring role in ensuring effective corporate governance (Forbes and Milliken, 1999; Jensen and Meckling, 1976), and so they contribute to the efforts of the banks to maintain sustainability (Michelon and Parbonetti, 2012).

Sustainability disclosures in banks and their association with board composition have, however, only received limited attention in the empirical literature, with most studies run in a single country context (see e.g. Barako and Brown, 2008; Jizi et al., 2014; Khan, 2010; Orazalin, 2019). Previous papers have also entirely overlooked the effect that disclosure and corporate governance regulations have on the corporate social responsibility (CSR)[1] disclosures of banks. This leaves us with little knowledge about how the board composition contributes to CSR disclosures at the major banks on a global scale, and how the corresponding regulations shape these linkages. For this reason, one strand of this dissertation aims to fill this gap.

Like banks, mutual funds have a significant role in the financial markets and the economy as they allocate capital to investments. They promote economic growth and efficiency by channelling household savings to financial markets as mutual fund investments. Mutual funds have become the most popular vehicles for investment, especially among small and private investors, as the fraction of private savings that is in mutual funds is considerable (see for example Mahoney, 2004). This makes them important financial intermediaries where there is increasing attention on the management of investments. In principle, mutual funds need to be managed in the best interests of their shareholders (see for example Bogle, 2005). This interest mainly translates into expectations about the financial performance of the investment, where the maximisation of risk-adjusted fund returns at the lowest possible cost is usually desired. Actively managed mutual funds charge higher fees than market-tracking passive indexes, since they bear extra costs for managing fund assets. Investors find the extra expense justifiable though when the actively managed funds provide higher risk-adjusted returns than those of the market-tracking index funds. This makes it important to explore the presence of managerial talent in mutual funds, in order to understand whether mutual funds can beat the market-tracking index funds and whether their performance can be explained by skill or luck.

Previous papers have studied the presence of skilful fund management in developed markets and in Asia (see e.g. Cuthbertson et al., 2008; Fama and French, 2010; Kosowski et al., 2006; Harvey and Liu, 2020; Song, 2020), but the topic has not been covered for

[1] Corporate social responsibility (CSR) is defined by the European Commission (2011) as "the responsibility of enterprises for their impact on society".

most emerging markets, including Central and Eastern Europe (CEE). Surprisingly little is known in consequence about whether fund management is skilful in rapidly expanding markets, where it is even more interesting. Having skilled fund managers is vital for stimulating growth in emerging markets as levels of financial literacy among individual investors are generally lower there. Likewise, the skills of fund managers themselves may not improve as rapidly as those markets expand. In this sense, it is intriguing to study the skills of fund managers in CEE because the level of financial literacy in the region remains low but the growth in the region outpaced that in all the other emerging markets in 2016-2020[2], which might have resulted in a shortage of skilful fund managers. Furthermore, the mutual fund industry in CEE is relatively young, which suggests that the fund managers there should be less experienced than those in more developed regions. At the same time, the fund management fees in CEE are about twice the European average[3]. This raises the question of whether the fees charged are justified by superior fund management skills. However, there are only a few limited studies on mutual funds from CEE, and most of them concentrate on the general performance of funds from single CEE countries and do not differentiate between the impact of skill and that of luck on performance (see e.g. Białkowski and Otten, 2011; Bóta and Ormos, 2017; Filip, 2017). The second strand of this dissertation contributes to this area by addressing the unresolved debate about whether the managers of actively managed mutual funds in CEE possess skill.

This thesis has two strands and both strands focus on financial intermediaries. The thesis first sheds light on how the corporate governance structures of banks contribute to their sustainability reporting. This is done by investigating the role of board composition in enhancing corporate social responsibility reporting by banks. Secondly, the thesis examines mutual fund performance. This involves exploring whether the performance of actively managed mutual funds in CEE can be explained by the skill of their fund managers or by luck.

The thesis consists of three published articles. Publications I and II study the effect of governance structures on the corporate social responsibility (CSR) disclosures by banks. The main focus in Publication I is on how the composition of the board of directors influences CSR disclosures and the quality of CSR disclosures of banks. Special attention is paid to how the corresponding regulations shape these linkages. Board composition is decomposed into variables that capture the size of the board, whether there is CEO duality[4], and the proportions of non-executive board members and women on the board. Publication II explores the topic of Publication I further by specifically concentrating on the role of women on the boards of banks while controlling for the impact of gender quotas.

The analysis in Publications I and II is based on a global sample of banks from 35 countries from North America, Western Europe, Central and Eastern Europe, Asia, and Oceania. The period studied is 2005-2017. Countries from both the developed and developing worlds are covered in order to provide generalisable results for major listed

[2] Based on the survey by Klapper et al. (2015) and on the data from World Bank. *World Federation of Exchanges* [Data set], *Market capitalization of listed domestic companies (current US$)* (indicator), and *Market capitalization of listed domestic companies (% of GDP)* (indicator).

[3] Based on the data from European Securities and Markets Authority (ESMA) (2019).

[4] CEO duality exists when the same person serves as the CEO and as the chairman of the board of directors (Rechner and Dalton, 1991).

banks, as these have the greatest global economic and social impact. The insights are further broadened by the help they offer for understanding the impact of country-level mandatory regulations on the governance and CSR disclosure of banks, which cannot be analysed in a single-country setting or in a setting that focuses on a very limited area. Publications I and II employ logistic regressions with bank-specific fixed effects, where the dependent variable is a binary dummy that captures the CSR disclosure decisions of the banks. In addition, Publication I uses alternative dependent variables to address the quality of the CSR report that is disclosed. These dummies show whether the bank's CSR report is prepared following the Global Reporting Initiative Sustainability Reporting (GRI) Standards[5], and whether it has been audited by an external auditor.

The first strand of the thesis in Publications I and II broadens the research into bank governance by thoroughly investigating the associations between the composition of the board of directors and the CSR disclosures of banks. Introducing indicators for regulation-corrected board composition and CSR reporting provides new insights into the linkage between corporate performance and governance characteristics.

The fundamental puzzle in Publication III is whether skilful fund management is present among actively managed mutual funds in Central and Eastern Europe (CEE). The paper separates fund manager skill from luck, which is the performance that comes from randomness. The focus is on CEE countries that are in the European Union, which are Bulgaria, Croatia, The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. CEE can serve as a model for rapidly expanding investment markets with further potential for tremendous growth, where the managerial talent may not improve at the same rapid rate that the markets expand. The analysis is based on the monthly net and gross returns of actively managed open-ended equity mutual funds that invest globally, and covers the period from September 2005 to December 2019.

Publication III uses the cross-sectional bootstrap approach, which allows fund manager skill to be separated from luck. The estimations are based on four different models. Three alternative multifactor models are used at first, which are the three-factor model of Fama and French (1993), the four-factor model of Carhart (1997), and the five-factor model of Fama and French (2015). The estimations then use benchmark regressions, which are regressions relative to the fund-specific benchmark indexes denoted in the fund prospectuses. The analysis is further enriched by focusing on the economic value added by fund managers, while investigating the difference between the value added by small funds and that added by large funds.

The second strand of the thesis in Publication III expands the literature concentrating on mutual fund performance. It is the first study to shed light on the presence of skill and luck in mutual fund returns in Central and Eastern Europe (CEE).

The thesis proceeds as follows. Section 1 discusses the fundamental theoretical reasoning behind corporate governance and the importance of informational transparency, highlights the role of banks, and gives an overview of Publications I and II. Section 2 explains the importance of mutual funds in financial markets, discusses the measurement of mutual fund performance and the subsequent empirical literature, and provides an overview of Publication III. Section 3 lays out concluding remarks,

[5] GRI Standards are designed for the financial services sector and include specific indicators related to financial products and services. GRI Standards are the first and most widely adopted global standards for sustainability reporting (Global Reporting Initiative, 2022).

the contributions of the thesis, and directions for future research. Appendices I-III reprint the three publications.

An earlier version of Publication I was presented at the 1st Baltic Economic Conference in June 2018, at the 10th International Conference "Economic Challenges in Enlarged Europe" in June 2018, and at the PhD Summer School in June 2018, at the 11th International Conference "Economic Challenges in Enlarged Europe" in June 2019, at the PhD workshop at the 2nd Annual Conference of the Global Research Alliance for Sustainable Finance and Investment (GRASFI) in September 2019, and in doctoral seminars at Tallinn University of Technology. The paper was accepted for publication in *Quantitative Finance and Economics* in May 2019.

An earlier version of Publication II was presented at the EFiC 2019 Conference on Banking and Corporate Finance in July 2019, at the 15th Annual Estonian Economic Association (EMS) Conference in January 2020, and in doctoral seminars at Tallinn University of Technology. The paper was accepted for publication in *Corporate Governance: The International Journal of Business in Society* in March 2020.

An earlier version of Publication III was presented at the departmental seminar at Copenhagen Business School in March 2020, at the PhD Summer School in June 2021, at the World Finance Conference in August 2021, at the 13th International Conference "Evolving Challenges in European Economies" in August 2021, at the 4th Baltic Economic Conference in June 2022, and in doctoral seminars at Tallinn University of Technology. The paper was awarded the 2021 Vello Vensel Doctoral Research Prize given by the Estonian Economic Association for outstanding research work, the 2022 Best PhD Student Paper Award given by the Baltic Economic Association, and the 2022 Eesti Pank research prize in memory of Urmas Sepp in the doctoral category. The paper was accepted for publication in *Managerial Finance* in September 2022.

1 Bank governance and information disclosure

It is well documented that enterprises need financing in order to grow, but encouraging an attractive investment climate and healthy capital markets needs the expropriation of the interests of outside investors by inside shareholders and controlling managers to be kept to a minimal level (see e.g. La Porta et al. 1997; 1998; 2000; Levine, 2005; Shleifer and Vishny, 1997; Shleifer and Wolfenzon, 2002). This challenge was first described in Jensen and Meckling (1976) as the agency problem. In their framework, conflicts of interest between managers and investors are associated with the separation of ownership and control. Managers have more opportunities to exploit their position when there is information asymmetry, and the expropriation problem appears to be stronger in this case as the managers can take initiatives that conflict with the interests of shareholders and do not maximise shareholder wealth.

Many papers have compellingly emphasised that the most straightforward elements mitigating the agency and information problems lie within an appropriate corporate governance system and in that system functioning correctly (see for example Jensen and Meckling, 1976; Shleifer and Vishny, 1997). Corporate governance is defined by the OECD (2015) as "a set of relationships between a company's management, its board, its shareholders and other stakeholders". It focuses on the ways a company is managed and controlled, and so it is often also referred to as a set of mechanisms that prohibit investor expropriation and inefficient use of capital (for example La Porta et al., 2000). The term 'corporate governance' came more widely into vogue in the 1970s after a series of corporate failures, the integration of capital markets, and growth in private savings intensified the pressure for good behaviour by companies (as summarised in Becht et al., 2003). Once a corporate governance system is in place, investors can keep track of the activities of the managers and so can have more confidence in their financing decisions. Corporate governance is equally vital for companies, and Shleifer and Vishny (1997) for example emphasise that investors must be assured of getting a return on their investments if they are to be willing to finance companies in the first place. This leads to capital being distributed more efficiently between different investment opportunities, and so leads to economic growth. Early support for this argument can be derived from Freeman's (1984) stakeholder theory, where stakeholder interests play a central role along the road to financial success.

The history of empirical evidence that outlines the importance of corporate governance systems in enforcing financial development is long. Klapper and Love (2004) show that better corporate governance is accompanied by higher market valuations. Johnson et al. (2000) have identified that the quality of governance mechanisms predicts the extent of market declines during a crisis. Some other empirical papers demonstrate for example that effective corporate governance enhances financial deepening, reduces intermediation costs, increases aggregate lending and contributes to total productivity growth (see Beck et al., 2000; Demirgüç-Kunt et al., 2004; Jappelli et al., 2005; Jarmuzek and Lybek, 2020).

Still, investors need information so they can analyse investment opportunities, allocate resources effectively, and so defend their interests. When information is disclosed, it can be accessed by all interested stakeholders, managerial activities are more transparent and capital allocation decisions can be valued more correctly. This means that information is vital in ensuring that information asymmetry is minimised and the agency problem mitigated (Bushman and Smith, 2001; Healy and Palepu, 2001). This

is already stressed in corporate finance theory, in which information asymmetry should be traded off by optimising disclosure policy and management incentives in order to maximise firm value and thereby shareholder wealth (Core, 2001; Diamond and Verrecchia, 1991; Evans and Sridhar, 1996; Hughes et al., 2007; Skinner, 1994; Verrecchia, 1983). Some opposing theoretical models suggest in contrast though that public disclosure of information can also reduce investor wealth, as it destroys trading opportunities in risk-sharing markets through what is known as the Hirshleifer effect (Hirshleifer, 1971; Kurlat and Veldkamp, 2015). This view has not however received complete support, and the general understanding is being pinned down to the level of optimal disclosure (e.g. Goldstein and Leitner, 2018).

One of the main challenges in disclosure lies in channelling sufficient and appropriate information to investors. Among the most common channels for communicating information are public announcements, financial and non-financial reports, and general meetings. Many papers further emphasise the role of the financial market in producing information, such as prices, and mediating it to shareholders (e.g. Bond et al., 2012; Goldstein and Yang, 2017; Van Nieuwerburgh and Veldkamp, 2010). Corporate governance takes an enforcing role in channelling information to investors, and this has been more widely acknowledged since the 2008 global financial crisis, after which informational transparency gained more momentum.

It is widely acknowledged that the collapse of the economy was largely provoked by the unsustainable practices followed before the crisis, and informational asymmetry between managers and shareholders in banks (Barth and Landsman, 2010; Bischof et al., 2021). Problems arising from the failures in corporate governance practices at banks were largely transmitted to other sectors, and this then triggered economic collapse (for a review see Kirkpatrick, 2009). The subsequent literature heavily criticised the lack of information transparency as a significant contributing factor behind the crisis (e.g. Barth and Landsman, 2010; Beatty and Liao, 2014; Erkens et al., 2012; Pirson and Turnbull, 2011). The quality of the information available to investors and to the board was not sufficient to allow them to assess bank valuations and riskiness properly. Combined with poor corporate governance practices such as insufficient oversight by boards, overly complex organisational structures and inadequate risk management, this led to large shareholder losses (for a review see Mehran et al., 2011). Ever since then, more and more regulations have been established, and disclosure and corporate governance practices have moved to a position among the core activities of firms and banks (see for example Basel Committee on Banking Supervision, 2010). These regulations can concern board composition, ownership concentration, management compensation, or effective monitoring structures, but they vary across countries (Laeven, 2013). The restrictions most commonly address the composition of the boards of banks, as the boards supervise and shape strategic decisions and actions, including those that concern corporate governance practices (Forbes and Milliken, 1999; Jensen and Meckling, 1976).

Together with the higher pressure for disclosure and strong corporate governance, the crisis induced a more general transformation towards sustainability when some saw the global recession as an opportunity for green economic growth (see for example Schneider at al., 2010). In this view, economic degrowth, which includes downscaled consumption and production, opened a path for sustainable green policies. Sustainability encompasses all impacts on stakeholders and is reflected in continuous value creation in an environmental, social, or economic context (World Commission on Environment and Development, 1987). These issues are increasingly being stressed by stakeholders and

integrated into shareholder interests alongside financial criteria (see for example Laugel and Laszlo, 2009). Many authors show that not meeting these criteria drives down investor interest and so also a firm's value (e.g., Hartzmark and Sussman, 2019; Heinkel et al., 2001; Servaes and Tamayo, 2013). The review by Ali et al. (2017) highlights how highly visible companies pay more attention to matters of sustainability in order to reduce public pressure and retain external funding. This means that highly visible companies like banks are motivated to meet the challenges of sustainability and to disclose consequent information to their shareholders. One way of communicating such information to the public is through corporate social responsibility (CSR) reports. Corporate social responsibility (CSR) is defined by the European Commission (2011) as "the responsibility of enterprises for their impact on society". To achieve this, companies need to integrate social, environmental, ethical, consumer, and human rights concerns into their business strategies and operations, and must also follow the law.

From the theoretical perspective, CSR reporting is a manifestation of a social contact between a firm and society (Shocker and Sethi, 1973). It can be used to signal the firm's commitment to sustainability concerns, while also serving as an indirect tool for enhancing the firm's competitiveness and success (Saeidi et al., 2015). Freeman's (1984) stakeholder theory further supports this view, as the disclosure of CSR information is a way to account for shareholder interests and so gain their support. A similar stance is expected by legitimacy theory, as firms must remain legitimate to continue their existence (Gray et al., 1996). The impact of CSR reporting remains disputed under agency theory though, as one perspective sees it as a tool for enhancing firm value by reducing agency conflict and ensuring effective monitoring (for a review see Ali et al., 2017; Malik, 2015), while a less popular competing view claims that spending resources on non-financial activity is costly and comes at the expense of shareholders (Friedman, 1970; 2007).

On an empirical note, CSR disclosure practices, and the accuracy and quality of the information disclosed have received greater attention in the literature since the 2000s, especially after the 2008 financial crisis. The literature on CSR can be roughly divided into two parts. One strand tries to understand the motives for CSR disclosure and its characteristics by using content analysis, discourse analysis and interviews, or by analysing distinct cases (summarised in Ali et al., 2017). More recent studies in this strand emphasise the shift in engagement towards CSR reporting in response to business needs and regulatory pressures (e.g. Aureli et al., 2020; Hinze and Sump, 2019; Khan et al., 2020). Furthermore, Sorour et al. (2020) point out that the motives have at the same time become strongly attached to socio-political changes and the need to achieve moral legitimacy.

The second strand of the studies seeks to explore the determinants of CSR disclosure and the most commonly used regression-based methodologies. Most papers concentrate on either developed or developing countries and find that CSR disclosure is driven by corporate governance, ownership structure, company-specific financial indicators, and country-specific institutional factors (summarised in Ali et al., 2017). The majority of these factors are usually studied in combination, but there is still a wide variety in the precise areas of focus, the particular combination of factors and the extent of them, and the specific variables used.

Corporate governance structures have taken a place in the centre of attention in the literature on the determinants of CSR disclosure alongside financial indicators. However, the papers taking this approach generally cover nonfinancial firms (e.g., Adnan et al.,

2018; Fuente et al., 2017; Khan et al., 2013; Michelon and Parbonetti, 2012; Tibiletti et al., 2021). Levine (2004) has emphasised though that governance in banks is more complicated and should be studied separately from that at nonfinancial firms, because banks are under heavier regulation and subject to more intervention by governments. These regulations are important, as they could push banks towards sustainable practices and disclosures. The review by John et al. (2016) emphasises for example that regulating board structures affects the activities and strategies of banks, including those that are related to sustainability and social matters. Still, the CSR reporting of banks has received limited attention in the empirical literature and it has been predominantly in the single country context. These papers show that board diversity, independent board members, and larger boards have a positive effect on the CSR disclosures of banks, and CEO duality has a negative effect (see for example Barako and Brown, 2008; Jizi et al., 2014; Khan, 2010; Kiliç et al., 2015; Orazalin, 2019). However, the inferences have not been uniform as some authors have reported inconclusive or contrary results (Hossain and Reaz, 2007). The few studies carried out in a cross-country setting have overlooked some aspects of board composition such as diversity (García-Meca et al., 2018; Hu and Scholtens, 2014). Furthermore, previous papers have not addressed the impact of the disclosure and governance of banks, including board composition, and the regulations on their CSR disclosures. This suggests that little is known about how board composition is associated with the CSR disclosures of major banks around the globe, and how the regulative measures shape these associations. Considering these gaps, Publications I and II expand the knowledge in this field of research.

1.1 Empirical analysis

The fundamental puzzle addressed in Publication I and Publication II is how board composition is associated with the CSR disclosures of major banks. Publication I, "CSR reporting in banks: does the composition of the board of directors matter?", explores how the composition of the board of directors contributes to the CSR reporting and the quality of CSR disclosure of listed banks from around the world. The main focus is on the composition of the boards of banks, and special attention is paid to controlling for the regulatory requirements on board composition and CSR reporting. Board composition is decomposed into variables that capture the size of the board, whether or not there is CEO duality, and the proportions of non-executive board members and women on the board. The quality of CSR disclosure is measured by whether the bank's CSR report is prepared following the GRI Standards, and whether the bank's CSR report has been audited by an external auditor. This approach follows previous studies (e.g., Legendre and Coderre, 2013; Sierra-García et al., 2015). The responses of several financial indicators that capture the size and performance of the bank are also considered.

Publication II investigates the topic of Publication I further by specifically concentrating on the role of female representation on the boards of banks. The paper focuses on the association between female representation on boards and CSR reporting by listed banks from around the world, while controlling for the impact of country-specific gender quotas. It tries to understand whether quotas influence the association between female representation on boards and the CSR reporting of banks. The paper further focuses on how the masculinity-femininity balance in a country could influence the association between CSR disclosure and female representation. Several other board composition and financial indicators are included in the estimations in

addition to female representation, such as the presence of CEO duality, board size, board independence, and bank size and performance measures.

Publication I is the first study to investigate the associations between the composition of the board of directors and CSR disclosure and the quality of it in banks, while also considering governance and disclosure regulations. Publication I provides new insights into the linkages between corporate performance and governance characteristics by introducing board composition and CSR reporting indicators that are corrected with country-level regulatory requirements for listed banks. These regulation-corrected indicators show how much a particular board indicator exceeds the regulatory minimum by in percentage terms, and whether the CSR report is disclosed voluntarily. In this way the corrected measures capture whether the banks are making a voluntary commitment to CSR and whether they enhance the heterogeneity of their board voluntarily.

Publication II is the first study to control thoroughly for gender quotas while investigating the association between female representation on boards and CSR disclosure. Publication II also contributes to the literature by covering the masculinity-femininity balance of a country as a factor that could influence the association between CSR disclosure and female representation. Publication I and Publication II both move forward from the concentration on single-country studies that has so far predominated in research into CSR reporting by banks. Using a global sample helps to explain the impact of country-level mandatory regulations, which cannot be analysed in a single-country setting or in a setting that focuses on a very limited area.

The dataset in Publication I overlaps with the one used in Publication II. This is a yearly panel of 285 listed commercial banks with at least 25 billion dollars each in total assets from 35 countries around the world. The data cover the years 2005 to 2017. Because large amounts of the data for some regions are incomplete, only the data from North America, Western Europe, Central and Eastern Europe, Asia, and Oceania are employed. Countries from both the developed and developing worlds are covered because of the aspiration to provide generalisable results for the major listed banks with the greatest global economic and social impact.

The estimations in both publications are based on logistic regressions with bank-specific fixed effects. This allows unobserved heterogeneity across banks to be controlled for, and all country-specific indicators, which remain time-invariant. The dependent variable is the presence of a CSR report, which is proxied by binary dummy variables for the CSR disclosure decision, in line with the previous literature (e.g., Gamerschlag et al., 2011; Sierra-García et al., 2015). Publication I also uses alternative dependent variables to address the quality of the bank's CSR report. Those are also binary dummies, and they capture whether the bank has prepared its CSR report by following the GRI Standards, and whether the CSR report has been audited by an external auditor. Explanatory variables are lagged by one year to ensure weak exogeneity. To control for the role of country-level governance and CSR reporting regulations, alternative regulation-corrected board composition and CSR disclosure variables are created. This then distinguishes voluntary decisions from outcomes forced by regulation when the board is composed and the CSR report disclosed. In Publication II, female representation is first proxied by the proportion of women on the board of the bank. Secondly, an alternative quota-adjusted indicator is used, measuring whether and by how much the percentage of women on the board of a specific bank exceeds the quota imposed in a given country. To see whether the associations are different in feminine and masculine countries, the banks are then studied in two sub-samples based on the country-specific Hofstede

masculinity score. The cultural context of each country is alternatively addressed by looking at whether and by how much the percentage of women on the board exceeds the country's overall female workforce participation.

1.1.1 Results of Publication I

The results of Publication I show that bank boards being larger appears to lead to the disclosure of CSR reports being less likely, which is contrary to the findings of Jizi et al. (2014). The negative association remains when the report followed GRI Standards or was externally audited. Increasing the proportion of women on boards seems to increase the possibility of the bank starting to disclose, which is in line with Barako and Brown (2008), García-Meca et al. (2018) and Kiliç et al. (2015), and of it having an externally audited report. When the country-level regulatory requirements on board composition are controlled for, the inferences change remarkably. Board size shows no association with CSR disclosure or the quality of it, which could be because there are minimum sizes for boards in many countries and those minimums are exceeded by most banks. So board size might be irrelevant for CSR disclosure, while other indicators of board composition may still matter. Voluntary separation of the CEO and chairman of the board for instance encourages CSR reporting by the banks, and external verification of the report. This suggests that an independent chairman at a bank might put more focus on the interests of different stakeholders and on issues of sustainability. Furthermore, appointing more women to boards than is required has a weakly positive association with the disclosure of the CSR report. However, having more non-executive board members than required shows a negative association with the disclosure of CSR information and with whether the report follows the GRI Standards.

When the decision of banks to make a voluntary CSR disclosure is taken together with country-level regulations on board composition, most governance indicators turn insignificant. Only the proportion of non-executive board members exceeding the requirement continues to reduce voluntary reporting of CSR information. This means that non-executive board members tend to avoid disclosing CSR information. This could be either because they are appointed to the boards purely for their financial expertise (Arora and Dharwadkar, 2011), or because they do not want to endanger their own reputation by taking the risk of disclosing misleading information (Holmström, 1999).

Publication I demonstrated that mandatory governance regulations forced banks to change the composition of the board of directors and increase its diversity, which should promote their commitment to CSR activities. However, the results showed that the voluntary commitment to CSR of banks that have increased the diversity of their board voluntarily is not substantially different from that of banks that are subject to board composition requirements. However, disclosing CSR reports, even if it is mandatory in any case, is more likely in banks where the roles of the CEO and the chair of the board are separated voluntarily, and where there are more women on boards.

1.1.2 Results of Publication II

The results of Publication II show that the proportion of women on boards has a positive association with the CSR disclosures of banks, in line with the results by Barako and Brown (2008) for Kenyan banks and Kilic et al. (2015) for Turkish banks. This is so in both masculine and feminine countries. When country-level gender quotas are controlled for, the percentage of women on the board exceeding the quota shows no statistically significant association with the decision on CSR reporting in the whole sample of banks.

However, adding more women to boards than required could affect CSR disclosure in masculine countries but not in feminine countries. Furthermore, banks are more likely to start disclosing a CSR report if the proportion of women on boards is larger than the country's female participation in the workforce.

Interesting results appear when banks are divided into three groups by whether the proportion of women on their boards is above, below, or equal to the quota in the country where they are based. Banks where the proportion of women on the board is above or below the national requirement tend to start disclosing CSR reports more than banks where the proportion of women on boards corresponds exactly to the quota. The result for the banks with more women than the quota is quite unsurprising, and suggests that increasing the representation of women on boards voluntarily contributes to CSR disclosure. However, the explanation for why banks with fewer women than the quota exhibit stronger odds of starting to disclose a CSR report than is the case when female representation corresponds exactly to the quota could lie in impression management. Those banks may simply disclose CSR reports to compensate for their failure to meet the mandatory gender quota.

The results of Publication II suggest that the disclosure of CSR reports by banks could be increased if gender quotas were introduced. However, these quotas might not automatically guarantee the sustainability of the operations of the banks. Poorer CSR performance could also occur if the women who are appointed to boards only in order to meet the quota are not empowered, and so end up with insufficient say. The cultural context suggests that introducing board gender quotas could push banks toward greater CSR reporting in masculine countries but not in feminine countries.

2 Mutual fund performance

Mutual funds have a significant impact on the development of financial markets and the economy. By pooling savings, they offer diversification and economies of scale in costs. Mutual funds provide access to a wider range of investments, professionally managed portfolios, and reduced information costs (Gruber, 1996). Many papers suggest that their importance in stimulating economic growth arises from capital allocation as they collect inactive capital and allocate it to investments (for a more detailed discussion see e.g. Gruber, 1996; Kaminsky et al., 2001; Mahoney, 2004; Sirri and Tufano, 1998). Household savings that would otherwise not reach the financial markets are mobilised there as mutual fund investments. The returns collected increase the purchasing power of the investors in the mutual funds, and this is then reflected in increased demand for goods and services. This consequently promotes economic growth. All this makes mutual funds important financial intermediaries, especially for emerging and developing regions.

A considerable fraction of private savings is channelled to financial markets through mutual funds. This is reflected in Figure 2, which shows the proportions of financial assets held by households and household savings. It illustrates how the proportion of mutual fund shares within total household financial assets has grown within the last decade together with the higher rate of savings.

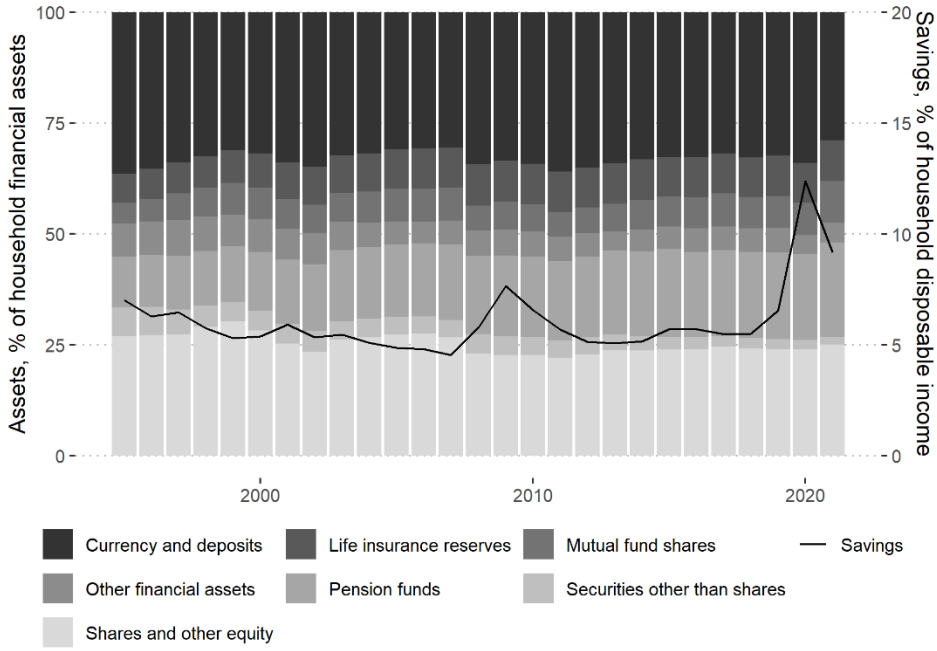


Figure 2. Household financial assets and savings, OECD countries 1995-2021.
Source: OECD (2022), Household accounts [Data set], Household financial assets (indicator). https://doi.org/10.1787/7519b9dc-en, and Household savings (indicator). https://doi.org/10.1787/cfc6f499-en.

Partly driven by their convenience, and partly by the growth in household savings in recent decades, mutual funds have become the most popular vehicles for investment (see also Mahoney, 2004). This is especially so among small and private investors who seek simple and convenient ways of investing. This extensive interest is reflected in the

increasing attention paid to how investments in mutual funds are managed. Fundamentally, a mutual fund should be operated in the best interests of its investors and not those of its managers who are providing the service (see for example Bogle, 2005; Gil-Bazo and Ruiz-Verdú, 2009). If this is not the case, private savings might not reach the financial market and economic growth could stall.

It is evident that investors are interested in investing largely because they want to increase their wealth. This interest principally translates into expectations about the financial performance of the investment. In the context of mutual funds, investors should usually desire the maximisation of risk-adjusted fund returns at the lowest possible cost, but this might not necessarily be in the interest of a mutual fund company. The company's main concern is to maximise the fund's value and take steps that increase the fund's income (see for example Jain and Wu, 2000). According to the literature, the primary catalysts for a conflict of interest between fund shareholders and managers are violations of fund governance principles, such as unreasonably high fund fees, improper activities like late trading or market timing, manipulation of fund fees and risk levels to improve fund rankings and so attract new investors, and failure to manage fund assets in the best interests of investors (Brown et al., 1996; Mahoney, 2004; Sirri and Tufano, 1998).

The manager-shareholder problem has long been in the centre of the debates in the mutual fund literature. However, the focus has predominantly been around the fees of mutual funds and the ability of fund managers to beat the market (e.g. Sharpe, 1966; Jensen, 1968; Carhart, 1997). The roots of these discussions are closely tied to the perspective of informational availability in Fama's (1970) efficient market theory. One of its theoretical implications suggests that if information is freely available, it is impossible to beat the market as prices already reflect all the information available. This idea was further refined in the works of Grossman (1976) and Grossman and Stiglitz (1980). Their models elaborated on the costliness of obtaining information and suggest that the informed investor receives compensation for the cost of being informed. This model is quite straightforward to apply in the setting of mutual funds. Passively managed index funds have low fees as they track the market and do not incur extra costs. Actively managed mutual funds charge higher fees since they bear extra costs for managing the fund (a detailed review of different types of mutual fund costs is provided in Mahoney (2004)). The manager-shareholder problem arises when these fees are not reasonable. In essence, investors find the extra expense justifiable when actively managed funds provide higher risk-adjusted returns than those of market-tracking index funds. This question is, however, highly empirical in nature.

Most empirical papers test mutual fund performance in the light of Markowitz's (1952, 1959) modern portfolio theory and the capital asset pricing model (CAPM) developed by Sharpe (1964), Treynor (1961, 1962), Lintner (1965), and Mossin (1966). The first generation of mutual fund papers developed performance measures such as Treynor's (1965) ratio, Sharpe's (1966) ratio, and Jensen's (1968) alpha, and found that mutual funds generally do not perform well enough to cover fund costs. Later, the focus shifted towards studying the presence of managerial talent, and to debating the reasoning behind the high fees of actively managed funds. The rationale behind this area of research is straightforward, as mutual fund assets should be managed skilfully and without excessive fees, which is reflected in positive alphas. The increasing pressure from lower-cost passively managed funds provoked these discussions even further. The famous theoretical model by Berk and Green (2004) argues that underperforming

the market does not indicate a lack of fund manager talent. They claim that active portfolio management faces diseconomies of scale and a competitive market, so funds fail to outperform passive benchmarks even if fund managers are skilled.

The inferences about the presence of managerial talent have not been without controversy. A majority of authors conclude that, after costs, actively managed mutual funds generally lack sufficient talent as they underperform the market and their passive counterparts (e.g. Daniel et al., 1997; Guercio and Reuter, 2014; Malkiel, 1995; Otten and Bams, 2002; Pástor and Vorsatz, 2020). These findings support Sharpe's (1991) ground-breaking assertion that active investment is a negative sum game after costs. However, there is evidence that there are some talented actively managed mutual funds that do perform better than the market (e.g. Berk and van Binsbergen, 2015; Grinblatt and Titman, 1989; Ippolito, 1989; Petajisto, 2013; Wermers, 2000).

Methodologically, the literature has historically converged towards measuring managerial talent with net alpha, which is the abnormal return earned by investors after fund management fees. More recently though, a competing view inspired by Berk and Green (2004), and later by Berk and van Binsbergen (2015), has become more popular. This suggests that gross alpha is a more correct measure of skill as net alphas are determined by the competition between investors, not by skill. Even so, the three and four-factor asset pricing models presented in the influential papers by Fama and French (1993) and Carhart (1997) have become the gold standard for evaluating these alphas. There are however quite vivid differences in the exact empirical applications of these models, and also in the way the alphas are interpreted. The naivest approach is merely to look at the size and sign of the alpha when judging whether managerial talent is present, while other papers concentrate on the persistence of mutual fund alphas and examine whether successful funds can maintain their success in subsequent periods (Bollen and Busse, 2005; Grinblatt and Titman, 1992; Petajisto, 2013; Vidal-García, 2013). However, these approaches fail to explain whether alphas can be explained by good or poor fund management skills, or by good or bad luck.

Kosowski et al. (2006) addressed this gap in the literature and proposed a cross-sectional bootstrap methodology that allows the skill of a fund manager to be separated from luck. Ever since, authors representing this strand of the literature have demonstrated that only a small amount of truly skilful funds exist (e.g. Cuthbertson et al., 2008; Fama and French, 2010; Kosowski et al., 2006). A majority of the studies separating skill from luck use data on returns from developed markets, mostly in the US and the UK, or from Asia (e.g. Barras et al., 2010; Blake et al., 2017; Cuthbertson et al., 2008; Ercolani et al., 2018, Harvey and Liu, 2020; Song, 2020). However, the separation of luck and skill is not covered at all in most emerging markets, including Central and Eastern Europe (CEE), where it is even more important. This is because mutual funds stimulate economic growth by providing investment opportunities for individual investors, including those with lower levels of financial literacy. But the skills of the fund managers in emerging markets may not improve as quickly as those markets expand, which might lead to a shortage of skilful fund managers. In this light, studying the skills of fund managers in CEE is intriguing because the financial literacy in the region remains low, but the growth in the region has outpaced that in all the other emerging markets. Moreover, there still is plenty of further potential for development that also creates solid grounds for the expansion of the investment fund industry (a more detailed explanation is provided in section 2.1). However, there are only a few limited studies on the mutual funds from CEE, with most concentrating on the general performance of funds from single CEE countries

and not differentiating between the performance outcomes due to skill and those due to luck (e.g. Białkowski and Otten, 2011; Bóta and Ormos, 2017; Filip, 2017). Publication III fills this gap and presents additional evidence in the unsettled debate about whether actively managed mutual fund managers in CEE possess skill.

2.1 Empirical analysis

Publication III, "Luck and skill in the performance of global equity funds in Central and Eastern Europe", examines whether actively managed mutual funds in Central and Eastern Europe (CEE) have sufficient managerial talent to manage fund assets skilfully. The focus is on the performance of individual global equity funds in CEE with the aim of separating their fund manager skill from the performance that comes from luck or in other words performance coming from randomness. The specifications use the cross-sectional bootstrap approach suggested in Kosowski et al. (2006).

The focus on fund managers in CEE is chosen because it is an emerging market with exceptionally high growth levels, where the financial literacy rate remains low[6]. The region's stock market growth outpaced that in other emerging markets during 2016-2020[7]. At the same time, the net assets and the number of investment funds grew faster there than in the rest of Europe and Asia[8]. This might have resulted in a shortage of skilful fund managers. However, there still remains further significant potential for development as the average size and the total number of investment funds is still low[9], but the household savings rate is higher than that in the US and the average in the EU[10]. Furthermore, the mutual fund industry in CEE is relatively young, which suggests that the fund managers there are less experienced than those in more developed regions. At the same time, the fund management fees in CEE are about twice the European average[11], which raises the question of whether the fees charged are justified by superior fund management skills. Despite all this, the research on fund performance in CEE has been sparse to date. These factors jointly create a solid base for the expansion of the investment fund industry in CEE, and make it an interesting region in which to explore the presence of fund manager skill. Furthermore, the CEE region can act as a proxy for other emerging regions with high growth potential and rapidly expanding investment markets.

Publication III contributes to the literature by being the first to shed light on the presence of skill versus luck in mutual fund returns in CEE. It also goes beyond existing studies by concentrating on the performance of individual funds, rather than on the general performance of mutual funds in CEE (e.g. Lemeshko and Rejnuš, 2015). Another novelty is the focus on the CEE region as a whole, which sets it apart from previous studies that typically look at single countries from CEE (e.g. Białkowski and Otten, 2011;

[6] Based on the survey by Klapper et al. (2015).

[7] Based on World Bank. *World Federation of Exchanges* [Data set], *Market capitalization of listed domestic companies (current US$)* (indicator), and *Market capitalization of listed domestic companies (% of GDP)* (indicator).

[8] Based on European Fund and Asset Management Association (EFAMA). *Quarterly International Statistical Releases* [Data set]. https://www.efama.org/node/501

[9] European Fund and Asset Management Association (EFAMA). *Quarterly European Statistical Releases* [Data set]. https://www.efama.org/node/501

[10] Based on OECD. (2022). *Household accounts* [Data set], *Household savings* (indicator). https://doi.org/10.1787/cfc6f499-en

[11] Based on the data from European Securities and Markets Authority (ESMA) (2019).

Bóta and Ormos, 2017; Filip, 2017). Publication III also focuses on the economic value added by fund managers, while investigating the difference between the value added by small funds and that added by large funds.

The study uses a unique dataset of global equity funds in CEE. It consists of the data for open-ended global equity funds incorporated in CEE countries that are in the European Union. These countries are Bulgaria, Croatia, The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia. Index funds are excluded since the aim is to examine the skill in the performance of actively managed funds. Merged and liquidated funds that were in existence during the sample period are also included. This means the sample contains fund-level monthly net and gross returns on 175 actively managed, open-ended, equity mutual funds that invest globally and are incorporated in CEE countries. The cross-sectional monthly dataset covers the period from September 2005 to December 2019. The focus is firstly on the whole period from September 2005 to December 2019, but to eliminate the severe negative effect of the 2008 financial crisis, the period after the crisis from May 2009 to December 2019 is then examined separately. The main inferences are made from the post-crisis period to concentrate on developments that occurred after the financial crisis.

Publication III uses the cross-sectional bootstrap approach first proposed in Kosowski et al. (2006). This methodology allows differences to be drawn between the performance attributable to fund manager skill and that coming from mere luck. Bootstrap simulations are applied to the monthly net and gross returns of mutual funds using three different multifactor models, which are the three-factor model of Fama and French (1993), the four-factor model of Carhart (1997) and the five-factor model of Fama and French (2015), and benchmark regressions, which are regressions relative to the fund-specific benchmark indexes denoted in the fund prospectuses. Alphas and alpha t-statistics are used as measures of abnormal performance. The main performance measure in the bootstrap analysis is the alpha t-statistic as it has better properties for controlling for heterogeneous risk-taking between individual funds, and is more robust to survivorship bias (Brown et al., 1992). The central idea of the cross-sectional bootstrap methodology is to estimate 1000 simulated alphas and alpha t-statistics for each individual fund in the sample. These represent the performance attributable to mere luck, where luck is the outcome of sampling variation, or in other words the randomness coming from the distribution of regression residuals. To distinguish luck from fund manager skill, the distributions of the real and simulated alpha t-statistics are compared. If the simulated gross alpha t-statistics are consistently lower than the gross alpha t-statistic from the real data, the fund's abnormal performance is interpreted as the result of the fund manager's skills, while consistently higher results indicate negative skills. Alternatively, the net returns and corresponding alpha t-statistics can be used to examine whether the fund managers have enough skill to cover the fund fees. The value added by the global equity fund managers in CEE is investigated by following the approach of Berk and van Binsbergen (2015), where the economic value added is calculated as the product of the gross alphas that arise from the benchmark regressions and fund size. The difference between the value added by small funds and that added by large funds is studied by dividing funds into size groups by quintiles. Small funds are in the first quintile, medium-sized funds in quintiles two to four, and large funds in the fifth quintile.

2.1.1 Results of Publication III

Publication III finds the presence of only a few truly skilful global equity funds in CEE, while a vast number of inferior performers dominate the sample. Multifactor models show there to be one fund with genuine skill even after the severe negative effect of the 2008 financial crisis is eliminated. For the other positive alpha funds, the bootstrap attributes superior performance to good luck. Even so, the number of poor performers is high as a majority of the individual funds are not able to deliver sufficiently large alpha to beat the factor returns, both net and gross of fees. Intriguingly, most of these negative alphas are the result of poor skills, not bad luck. In general, the inferences in Publication III detect less skill than the studies that use the cross-sectional bootstrapping methodology on US and UK data (e.g. Cuthbertson et al., 2008; Fama and French, 2010; Kosowski et al., 2006; Song, 2020). This suggests that a mismatch problem between demand and the supply of skilful fund managers may have emerged in CEE. Compared to the rapid growth in the region's investment fund industry, the knowledge and skills of fund managers may be lagging.

In contrast, benchmark regressions indicate that about 5% of the global equity funds in CEE have the skill to beat their benchmark indexes denoted in fund prospectuses, gross of fees. However, fund management fees absorb most of this skill. The empirical results of Publication III remain qualitatively stable when they are controlled for survival bias and home bias, and when the number of bootstrap repetitions is altered.

The results of Publication III therefore indicate that mutual funds in CEE may charge excessively high fees for the abnormal performance they add. Even though there are some mutual fund managers in CEE who do possess skill, their skill might not be sufficient to cover their fund fees. One of the reasons why fees are high might lie in a combination of weak competition and high demand for mutual funds in CEE. Overall, these results suggest that global equity fund investors in CEE consistently lose money on their mutual fund investments. This then implies that policymakers could consequently consider regulating fund management fees in CEE to some extent. This is important in order to further encourage investors in CEE to put their private savings into financial markets and thereby stimulate economic growth.

As a whole, global equity funds in CEE add more economic value than they destroy, gross of fees. Fund size is an important factor in this matter. Large funds drive the value added upwards so that they have the greatest economic impact. The economic impact of small and medium-sized funds is close to zero. Small funds offer the most extreme positive and negative abnormal returns, but are highly sensitive to crisis periods. This would suggest that small actively managed funds in CEE might be preferred by investors with a high level of risk appetite when markets are stable or growing. Large actively managed funds in CEE are more suitable for investors who are a bit less risk tolerant at any stage of the market cycle. The results of Publication III provide evidence that the best choice for investors who want to maximise their risk-adjusted returns at the lowest possible cost is market-tracking passive indexes. This is so because the majority of global equity funds in CEE do not have the skill to outperform the market on a net return basis.

3 Final comments

Financial intermediaries are without doubt the key drivers for channelling capital to financial markets. By providing their services, they shape the processes of modern financial markets. Their prosperity is also largely transmitted to other sectors, setting these institutions in the frontline of steering economic health. This makes it important to study financial intermediaries and understand their role in shaping modern financial markets.

This thesis consisted of two strands and both concentrated on financial intermediaries. The thesis first shed light on how the corporate governance structures of banks contribute to their sustainability reporting (Publications I and II). This was done by investigating the role of board composition in enhancing the corporate social responsibility (CSR) reporting of the banks. Secondly, the thesis examined mutual fund performance (Publication III). This involved exploring whether the performance of actively managed mutual funds in Central and Eastern Europe (CEE) can be explained by the skill of their fund managers or by luck. Studying banks and mutual funds is important as they are the largest and most visible financial intermediaries, and they have a substantial impact on the economy.

All three publications expanded the academic literature in their separate fields. Publications I and II advanced the literature on bank governance that investigates the role of the composition of the board of directors in corporate social responsibility (CSR) reporting by banks. Publication I was the first to investigate the associations between the composition of the board of directors and CSR disclosure and the quality of it, while also considering governance and CSR regulations. By introducing board composition and CSR reporting indicators that are corrected with country-level regulatory requirements, it provided new insights into the linkage between corporate performance and governance characteristics. Those measures made it possible to capture the voluntary commitment of banks to CSR and to increasing the diversity of their boards. Publication II investigated the topic of Publication I further by concentrating specifically on the role of female representation on the boards of banks. This was the first study to control thoroughly for gender quotas while investigating the association between female representation on boards and CSR disclosure. Publication II also covered the degree of masculinity or femininity of a country as a factor that could influence the association between CSR disclosure and female representation. Publication I and Publication II both moved forward from the concentration on single-country research that has predominated so far in studies on CSR reporting by banks. Using a global sample helped in understanding the impact of country-level mandatory regulations, which cannot be analysed in a single-country setting or in a setting focusing on a very limited area.

Publication I demonstrated that mandatory governance regulations forced banks to change the composition of their boards of directors and make them more diverse, which should promote their commitment to CSR activities. However, the results showed that the voluntary commitment to CSR by banks that increase their board diversity voluntarily is not substantially different from that of banks that are subject to board composition requirements. Disclosure of CSR reports, even if it is mandatory, is however more likely at banks where the roles of the CEO and the chair of the board are separated voluntarily and where there are more women on boards. Publication II further suggested that the disclosure of CSR reports could be increased if gender quotas were introduced. Investors still need to consider though that these quotas might not automatically guarantee that a

bank's operations are sustainable. Poorer CSR performance could also occur if women are appointed to boards only to meet the quota and end up with insufficient say. The cultural context suggests that introducing gender quotas for boards could push banks toward greater CSR reporting in masculine countries but not in feminine countries.

Publications I and II imply that future studies on CSR disclosure should consider country-level mandatory regulations. The impact of gender quotas should be examined when the role of women is studied in the context of different corporate outcomes, including corporate performance. Furthermore, it would also be interesting to investigate whether impression management is occurring through CSR reporting. Since the methodology used in Publications I and II has limitations that mean causation cannot be detected, this aspect deserves attention in future studies focusing on the CSR disclosures of banks. Some alternative empirical methodologies that could be used are structural equation modelling, Bayesian Model Averaging, or machine learning methods. The results in Publications I and II are not generalisable to smaller listed banks because only large listed banks were covered in these studies.

Publication III expanded the literature on mutual fund performance by enriching the unresolved debate about whether mutual fund managers possess managerial talent. Publication III was the first study to shed light on the presence of skill rather than luck in mutual fund returns in Central and Eastern Europe (CEE). It also went beyond existing studies by concentrating on the performance of individual funds, rather than on the general performance of mutual funds in CEE. Another novelty was the focus on the CEE region as a whole in contrast to previous studies that have typically looked at single countries from CEE. The focus was also on the economic value added by fund managers, together with an investigation into the difference between the value added by small funds and that added by large funds. Publication III found that there are only a few truly skilful global equity funds in CEE, and most of the negative performance among the funds appeared to be due to poor skills, not bad luck. Even though there are some mutual fund managers in CEE who do possess skill, their skill might not be sufficient to cover their fund fees. The results of Publication III thereby indicate that mutual funds in CEE may charge excessively high fees for the abnormal performance they add. This would hint that global equity fund investors in CEE consistently lose money on their mutual fund investments.

Publication III consequently implies that policymakers could consider regulating fund management fees in CEE to some extent. This is important in order to encourage investors in CEE further to continue directing their private savings to financial markets and thereby stimulate economic growth. Publication III also provided evidence that market-tracking passive indexes are the best choice for investors who want to maximise their risk-adjusted returns at the lowest possible cost. However, investors who are highly risk tolerant could consider small actively managed funds in CEE when markets are stable or growing. Similarly, large actively managed funds in CEE could be considered by investors whose risk appetite is a bit lower at any stage of the market cycle. The findings of Publication III may also be transferable to other emerging regions with potential for fast growth and rapidly expanding investment markets.

Publication III also leaves room for future studies. It would be useful to extend this study by considering how the specific characteristics of funds and fund managers affect the presence of fund manager skill. Characteristics such as fund investment style, fund flows, fund management structure, and fund manager education could be interesting to look into. The relationship between fund size and value added is also worth more

detailed attention in future studies. It would also be interesting to repeat this study in the future when financial literacy and fund management experience have become wider and more developed in CEE.

This thesis advanced the literature by providing new insights into bank governance and mutual fund performance. This allowed it to lay out several practical and policy suggestions. However, further research on these topics is to be welcomed as the thesis opened new avenues that, it is hoped, will provide solid ground for future debates.

List of Figures

References

Acharya, V. V, Philippon, T., Richardson, M., & Roubini, N. (2009). The financial crisis of 2007-2009: Causes and remedies. In V. V. Acharya & M. Richardson (Eds.), *Restoring financial stability: how to repair a failed system* (pp. 1-56). John Wiley & Sons.

Adnan, S. M., Hay, D., & van Staden, C. J. (2018). The influence of culture and corporate governance on corporate social responsibility disclosure: A cross country analysis. *Journal of Cleaner Production*, 198, 820-832.

Ali, W., Frynas, J. G., & Mahmood, Z. (2017). Determinants of corporate social responsibility (CSR) disclosure in developed and developing countries: A literature review. *Corporate Social Responsibility and Environmental Management*, 24(4), 273-294.

Arora, P., & Dharwadkar, R. (2011). Corporate governance and corporate social responsibility (CSR): The moderating roles of attainment discrepancy and organization slack. *Corporate Governance: An International Review*, 19(2), 136-152.

Aureli, S., Del Baldo, M., Lombardi, R., & Nappo, F. (2020). Nonfinancial reporting regulation and challenges in sustainability disclosure and corporate governance practices. *Business Strategy and the Environment*, 29(6), 2392-2403.

Barako, D. G., & Brown, A. M. (2008). Corporate social reporting and board representation: evidence from the Kenyan banking sector. *Journal of Management & Governance*, 12(4), 309-324.

Barras, L., Scaillet, O., & Wermers, R. (2010). False discoveries in mutual fund performance: Measuring luck in estimated alphas. *The Journal of Finance*, 65(1), 179-216.

Barth, M. E., & Landsman, W. R. (2010). How did financial reporting contribute to the financial crisis? *European Accounting Review*, 19(3), 399-423.

Basel Committee on Banking Supervision. (2010). *Principles for Enhancing Corporate Governance*. http://www.bis.org/publ/bcbs168.htm

Beatty, A., & Liao, S. (2014). Financial accounting in the banking industry: A review of the empirical literature. *Journal of Accounting and Economics*, 58(2-3), 339-383.

Becht, M., Bolton, P., & Röell, A. (2003). Corporate governance and control. In *Handbook of the Economics of Finance* (Vol. 1, pp. 1-109). Amsterdam: Elsevier.

Beck, T., Levine, R., & Loayza, N. (2000). Finance and the Sources of Growth. *Journal of Financial Economics*, 58(1-2), 261-300.

Bencivenga, V. R., & Smith, B. D. (1991). Financial intermediation and endogenous growth. *The Review of Economic Studies*, 58(2), 195-209.

Berk, J. B., & Green, R. C. (2004). Mutual fund flows and performance in rational markets. *Journal of Political Economy*, 112(6), 1269-1295.

Berk, J. B., & van Binsbergen, J. H. (2015). Measuring skill in the mutual fund industry. *Journal of Financial Economics*, 118(1), 1-20.

Białkowski, J., & Otten, R. (2011). Emerging market mutual fund performance: Evidence for Poland. *The North American Journal of Economics and Finance*, 22(2), 118-130.

Bischof, J., Laux, C., & Leuz, C. (2021). Accounting for financial stability: Bank disclosure and loss recognition in the financial crisis. *Journal of Financial Economics*, 141(3), 1188-1217.

Blake, D., Caulfield, T., Ioannidis, C., & Tonks, I. (2017). New evidence on mutual fund performance: A comparison of alternative bootstrap methods. *Journal of Financial and Quantitative Analysis*, 52(3), 1279-1299.

Bogle, J. C. (2005). The mutual fund industry 60 years later: For better or worse?. *Financial Analysts Journal*, 61(1), 15-24.

Bollen, N. P., & Busse, J. A. (2005). Short-term persistence in mutual fund performance. *The Review of Financial Studies*, 18(2), 569-597.

Bond, P., Edmans, A., & Goldstein, I. (2012). The real effects of financial markets. *Annu. Rev. Financ. Econ.*, 4(1), 339-360.

Bóta, G., & Ormos, M. (2017). Determinants of the performance of investment funds managed in Hungary. *Economic Research-Ekonomska Istraživanja*, 30(1), 140-153.

Brown, K. C., Harlow, W. V., & Starks, L. T. (1996). Of tournaments and temptations: An analysis of managerial incentives in the mutual fund industry. *The Journal of Finance*, 51(1), 85-110.

Brown, S. J., Goetzmann, W., Ibbotson, R. G., & Ross, S. A. (1992). Survivorship bias in performance studies. *The Review of Financial Studies*, 5(4), 553-580.

Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting and Economics*, 32(1-3), 237-333.

Carhart, M. M. (1997). On persistence in mutual fund performance. *The Journal of Finance*, 52(1), 57-82.

Core, J. E. (2001). A review of the empirical disclosure literature: discussion. *Journal of Accounting and Economics*, 31(1-3), 441-456.

Cuthbertson, K., Nitzsche, D., & O'Sullivan, N. (2008). UK mutual fund performance: Skill or luck?. *Journal of Empirical Finance*, 15(4), 613-634.

Daniel, K., Grinblatt, M., Titman, S., & Wermers, R. (1997). Measuring mutual fund performance with characteristic-based benchmarks. *The Journal of Finance*, 52(3), 1035-1058.

Demirgüç-Kunt, A., Laeven, L., & Levine, R. (2004). Regulations, Market Structure, Institutions, and the Cost of Financial Intermediation. *Journal of Money, Credit, and Banking*, 36(3), 593-622.

Diamond, D. W., & Verrecchia, R. E. (1991). Disclosure, liquidity, and the cost of capital. *The Journal of Finance*, 46(4), 1325-1359.

Ercolani, M. G., Pouliot, W., & Ercolani, J. S. (2018). Luck versus skill over time: time-varying performance in the cross-section of mutual fund returns. *Applied Economics*, 50(34-35), 3686-3701.

Erkens, D. H., Hung, M., & Matos, P. (2012). Corporate governance in the 2007–2008 financial crisis: Evidence from financial institutions worldwide. *Journal of Corporate Finance*, 18(2), 389-411.

European Commission. (2011, October 25). *A renewed EU strategy 2011-14 for Corporate Social Responsibility* (Report COM/2011/681). https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0681

European Securities and Markets Authority (ESMA). (2019). *Annual Statistical Report on performance and costs of retail investment products in the EU*. https://www.esma.europa.eu/sites/default/files/library/esma50-165-731-asr-performance_and_costs_of_retail_investments_products_in_the_eu.pdf

Evans, J. H., & Sridhar, S. S. (1996). Multiple control systems, accrual accounting, and earnings management. *Journal of Accounting Research*, 34(1), 45-65.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383-417.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33(1), 3-56.

Fama, E. F., & French, K. R. (2010). Luck versus skill in the cross-section of mutual fund returns. *The Journal of Finance*, 65(5), 1915-1947.

Fama, E. F., & French, K. R. (2015). A five-factor asset pricing model. *Journal of Financial Economics*, 116(1), 1-22.

Filip, D. (2017). The return variability and dispersion: evidence from mutual funds in post-transition countries. *Financial Assets and Investing*, 8(1), 19-39.

Forbes, D. P., & Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Academy of Management Review*, 24(3), 489-505.

Freeman, R.E. (1984) *Strategic Management: a Stakeholder Approach*. Boston: Pitman.

Friedman, M. (1970). The social responsibility of business is to increase its profits. The New York Times, September 13, 1970.

Friedman, M. (2007). The social responsibility of business is to increase its profits. In *Corporate Ethics and Corporate Governance* (pp. 173-178). Berlin, Heidelberg: Springer.

Fuente, J. A., García-Sanchez, I. M., & Lozano, M. B. (2017). The role of the board of directors in the adoption of GRI guidelines for the disclosure of CSR information. *Journal of Cleaner Production*, 141, 737-750.

Gamerschlag, R., Möller, K., & Verbeeten, F. (2011). Determinants of voluntary CSR disclosure: empirical evidence from Germany. *Review of Managerial Science*, 5(2), 233-262.

García-Meca, E., Uribe-Bohórquez, M. V., & Cuadrado-Ballesteros, B. (2018). Culture, board composition and corporate social reporting in the banking sector. *Administrative Sciences*, 8(3), 41.

Gil-Bazo, J., & Ruiz-Verdú, P. A. B. L. O. (2009). The relation between price and performance in the mutual fund industry. *The Journal of Finance*, 64(5), 2153-2183.

Global Reporting Initiative. (2022). *Consolidated set of the GRI Standards*.

Goldstein, I., & Leitner, Y. (2018). Stress tests and information disclosure*. Journal of Economic Theory*, 177, 34-69.

Goldstein, I., & Yang, L. (2017). Information disclosure in financial markets. *Annual Review of Financial Economics*, 9(1), 101-125.

Gorton, G., & Winton, A. (2003). Financial intermediation. In G. M. Constantinides, M. Harris, R. M. Stulz (Eds.), *Handbook of the Economics of Finance* (Vol. 1, pp. 431-552). Elsevier.

Gray, R., Owen, D., & Adams, C. (1996). *Accounting & accountability: changes and challenges in corporate social and environmental reporting*. Hemel Hempstead: Prentice Hall.

Greenwood, J., & Jovanovic, B. (1990). Financial development, growth, and the distribution of income. *Journal of Political Economy*, 98(5, Part 1), 1076-1107.

Grinblatt, M., & Titman, S. (1989). Mutual fund performance: An analysis of quarterly portfolio holdings. *The Journal of Business*, 62(3), 393-416.

Grinblatt, M., & Titman, S. (1992). The persistence of mutual fund performance. *The Journal of Finance*, 47(5), 1977-1984.

Grossman, S. (1976). On the efficiency of competitive stock markets where trades have diverse information. *The Journal of Finance*, 31(2), 573-585.

Grossman, S. J., & Stiglitz, J. E. (1980). On the impossibility of informationally efficient markets. *American Economic Review*, 70(3), 393-408.

Gruber, M. J. (1996). Another Puzzle: The Growth in Actively Managed Mutual Funds. *The Journal of Finance*, 51(3), 783-810.

Guercio, D. D., & Reuter, J. (2014). Mutual fund performance and the incentive to generate alpha. *The Journal of Finance*, 69(4), 1673-1704.

Hartzmark, S. M., & Sussman, A. B. (2019). Do investors value sustainability? A natural experiment examining ranking and fund flows. *The Journal of Finance*, 74(6), 2789-2837.

Harvey, C. R., & Liu, Y. (2020). False (and missed) discoveries in financial economics. *The Journal of Finance*, 75(5), 2503-2553.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, 31(1-3), 405-440.

Heinkel, R., Kraus, A., & Zechner, J. (2001). The effect of green investment on corporate behavior. *Journal of Financial and Quantitative Analysis*, 36(4), 431-449.

Hinze, A. K., & Sump, F. (2019). Corporate social responsibility and financial analysts: A review of the literature. *Sustainability Accounting, Management and Policy Journal*, 10(1), 126-156.

Hirshleifer, J. (1971). The Private and Social Value of Information and the Reward to Inventive Activity. *American Economic Review*, 61(4), 561-574.

Holmström, B. (1999). Managerial incentive problems: A dynamic perspective. *The Review of Economic Studies*, 66(1), 169-182.

Hossain, M., & Reaz, M. (2007). The determinants and characteristics of voluntary disclosure by Indian banking companies. *Corporate Social Responsibility and Environmental Management*, 14(5), 274-288.

Hu, V. I., & Scholtens, B. (2014). Corporate social responsibility policies of commercial banks in developing countries. *Sustainable Development*, 22(4), 276-288.

Hughes, J. S., Liu, J., & Liu, J. (2007). Information asymmetry, diversification, and cost of capital. *The Accounting Review*, 82(3), 705-729.

Ippolito, R. A. (1989). Efficiency with costly information: A study of mutual fund performance, 1965–1984. *The Quarterly Journal of Economics*, 104(1), 1-23.

Jain, P. C., & Wu, J. S. (2000). Truth in mutual fund advertising: Evidence on future performance and fund flows. *The Journal of Finance*, 55(2), 937-958.

Jappelli, T., Pagano, M., & Bianco, M. (2005). Courts and banks: Effects of judicial enforcement on credit markets. *Journal of Money, Credit and Banking*, 37(2), 223-244.

Jarmuzek, M., & Lybek, T. (2020). Can good governance lower bank intermediation costs?. *Applied Economics*, 52(27), 2960-2976.

Jensen, M. C. (1968). The performance of mutual funds in the period 1945-1964. *The Journal of Finance*, 23(2), 389-416.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.

Jizi, M. I., Salama, A., Dixon, R., & Stratling, R. (2014). Corporate governance and corporate social responsibility disclosure: Evidence from the US banking sector. *Journal of Business Ethics*, 125(4), 601-615.

John, K., De Masi, S., & Paci, A. (2016). Corporate governance in banks. *Corporate Governance: An International Review*, 24(3), 303-321.

Johnson, S., Boone, P., Breach, A., & Friedman, E. (2000). Corporate governance in the Asian financial crisis. *Journal of Financial Economics*, 58(1-2), 141-186.

Kaminsky, G., Lyons, R., & Schmukler, S. (2001). Mutual fund investment in emerging markets: An overview. In S. Claessens & K. J. Forbes (Eds.), *International Financial Contagion* (pp. 157-185). Springer.

Khan, A., Muttakin, M. B., & Siddiqui, J. (2013). Corporate governance and corporate social responsibility disclosures: Evidence from an emerging economy. *Journal of Business Ethics*, 114(2), 207-223.

Khan, H. U. Z. (2010). The effect of corporate governance elements on corporate social responsibility (CSR) reporting: Empirical evidence from private commercial banks of Bangladesh. *International Journal of Law and Management*, 52(2), 82-109.

Khan, H. Z., Bose, S., & Johns, R. (2020). Regulatory influences on CSR practices within banks in an emerging economy: Do banks merely comply?. *Critical Perspectives on Accounting*, 71, 102096.

Kiliç, M., Kuzey, C., & Uyar, A. (2015). The impact of ownership and board structure on Corporate Social Responsibility (CSR) reporting in the Turkish banking industry. *Corporate Governance: The International Journal of Business in Society*, 15(3), 357-374.

King, R. G., & Levine, R. (1993). Finance, entrepreneurship and growth. *Journal of Monetary Economics*, 32(3), 513-542.

Kirkpatrick, G. (2009). The corporate governance lessons from the financial crisis. *OECD Journal: Financial Market Trends*, 2009(1), 61-87.

Klapper, L. F., & Love, I. (2004). *Corporate governance, investor protection, and performance in emerging markets*. Journal of Corporate Finance, 10(5), 703-728.

Klapper, L., Lusardi, A., & van Oudheusden, P. (2015). *Financial Literacy Around the World: Insights from the S&P Global FinLit Survey*. https://gflec.org/wp-content/uploads/2015/11/3313-Finlit_Report_FINAL-5.11.16.pdf?x59497

Kosowski, R., Timmermann, A., Wermers, R., & White, H. (2006). Can mutual fund "stars" really pick stocks? New evidence from a bootstrap analysis. *The Journal of Finance*, 61(6), 2551-2595.

Kurlat, P., & Veldkamp, L. (2015). Should we regulate financial information?. *Journal of Economic Theory*, 158, Part B, 697-720.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics*, 58(1-2), 3-27.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1998). Law and finance. *Journal of Political Economy*, 106(6), 1113-1155.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. *The Journal of Finance*, 52(3), 1131-1150.

Laeven, L. (2013). Corporate governance: what's special about banks?. *Annual Review of Financial Economics*, 5(1), 63-92.

Laugel, J. F., & Laszlo, C. (2009). Financial crisis: The opportunity for sustainable value creation in banking and insurance. *Journal of Corporate Citizenship*, (35), 24-38.

Legendre, S., & Coderre, F. (2013). Determinants of GRI G3 application levels: the case of the fortune global 500. *Corporate Social Responsibility and Environmental Management*, 20(3), 182-192.

Lemeshko, O., & Rejnuš, O. (2015). Performance evaluation of equity mutual funds in countries with emerging economies: Evidence from BRIC, CEE, sea and MENA regions. *Procedia Economics and Finance*, 30, 476-486.

Levine, R. (2004). *The corporate governance of banks: A concise discussion of concepts and evidence* (Policy Research Working Paper No. 3404). World Bank Publications.

Levine, R. (2005). Finance and growth: theory and evidence. *Handbook of Economic Growth*, 1(A), 865-934.

Lintner, J. (1965). Security prices, risk, and maximal gains from diversification. *The Journal of Finance*, 20(4), 587-615.

Mahoney, P. G. (2004). Manager-investor conflicts in mutual funds. *Journal of Economic Perspectives*, 18(2), 161-182.

Malik, M. (2015). Value-enhancing capabilities of CSR: A brief review of contemporary literature. *Journal of Business Ethics*, 127(2), 419-438.

Malkiel, B. G. (1995). Returns from investing in equity mutual funds 1971 to 1991. *The Journal of Finance*, 50(2), 549-572.

Markowitz, H. M. (1952). Portfolio Selection. *The Journal of Finance*, 7(1), 77-91.

Markowitz, H. M. (1959). *Portfolio Selection: Efficient Diversification of Investments*. New York: Wiley.

Mehran, H., Morrison, A. D., & Shapiro, J. D. (2011). Corporate governance and banks: What have we learned from the financial crisis?. *FRB of New York Staff Report*, (502).

Michelon, G., & Parbonetti, A. (2012). The effect of corporate governance on sustainability disclosure. *Journal of Management & Governance*, 16(3), 477-509.

Mossin, J. (1966). Equilibrium in a capital asset market. *Econometrica*, 34(4), 768-783.

OECD. (2015). *G20/OECD Principles of Corporate Governance*. OECD Publishing. https://doi.org/10.1787/9789264236882-en

Orazalin, N. (2019). Corporate governance and corporate social responsibility (CSR) disclosure in an emerging economy: evidence from commercial banks of Kazakhstan. *Corporate Governance: The International Journal of Business in Society*, 19(3), 490-507.

Otten, R., & Bams, D. (2002). European mutual fund performance. *European Financial Management*, 8(1), 75-101.

Pástor, Ľ., & Vorsatz, M. B. (2020). Mutual fund performance and flows during the COVID-19 crisis. *The Review of Asset Pricing Studies*, 10(4), 791-833.

Petajisto, A. (2013). Active share and mutual fund performance. *Financial Analysts Journal*, 69(4), 73-93.

Pirson, M., & Turnbull, S. (2011). Corporate governance, risk management, and the financial crisis: An information processing view. *Corporate Governance: An International Review*, 19(5), 459-470.

Rechner, P. L., & Dalton, D. R. (1991). CEO duality and organizational performance: A longitudinal analysis. *Strategic Management Journal*, 12(2), 155-160.

Saeidi, S. P., Sofian, S., Saeidi, P., Saeidi, S. P., & Saaeidi, S. A. (2015). How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. *Journal of Business Research*, 68(2), 341-350.

Schneider, F., Kallis, G., & Martinez-Alier, J. (2010). Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue. *Journal of Cleaner Production*, 18(6), 511-518.

Servaes, H., & Tamayo, A. (2013). The impact of corporate social responsibility on firm value: The role of customer awareness. *Management Science*, 59(5), 1045-1061.

Sharpe, W. F. (1964). Capital asset prices: A theory of market equilibrium under conditions of risk. *The Journal of Finance*, 19(3), 425-442.

Sharpe, W. F. (1966). Mutual fund performance. *The Journal of Business*, 39(1), 119-138.

Sharpe, W. F. (1991). The arithmetic of active management. *Financial Analysts Journal*, 47(1), 7-9.

Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The Journal of Finance*, 52(2), 737-783.

Shleifer, A., & Wolfenzon, D. (2002). Investor protection and equity markets. *Journal of Financial Economics*, 66(1), 3-27.

Shocker, A. D., & Sethi, S. P. (1973). An approach to incorporating societal preferences in developing corporate action strategies. *California Management Review*, 15(4), 97-105.

Sierra-García, L., Zorio-Grima, A., & García-Benau, M. A. (2015). Stakeholder engagement, corporate social responsibility and integrated reporting: An exploratory study. *Corporate Social Responsibility and Environmental Management*, 22(5), 286-304.

Sirri, E. R., & Tufano, P. (1998). Costly search and mutual fund flows. *The Journal of Finance*, 53(5), 1589-1622.

Skinner, D. J. (1994). Why firms voluntarily disclose bad news. *Journal of Accounting Research*, 32(1), 38-60.

Song, Y. (2020). The mismatch between mutual fund scale and skill. *The Journal of Finance*, 75(5), 2555-2589.

Sorour, M. K., Shrives, P. J., El-Sakhawy, A. A., & Soobaroyen, T. (2020). Exploring the evolving motives underlying corporate social responsibility (CSR) disclosures in developing countries: the case of "political CSR" reporting. *Accounting, Auditing & Accountability Journal*, 34(5), 1051-1079.

Tibiletti, V., Marchini, P. L., Furlotti, K., & Medioli, A. (2021). Does corporate governance matter in corporate social responsibility disclosure? Evidence from Italy in the "era of sustainability". *Corporate Social Responsibility and Environmental Management*, 28(2), 896-907.

Treynor, J. L. (1961). Market value, time, and risk. (August 8, 1961). Unpublished manuscript.

Treynor, J. L. (1962). Toward a theory of market value of risky assets. Unpublished manuscript.

Treynor, J. L. (1965). How to rate management of investment funds. *Harvard Business Review*, 44, 63-75.

Van Nieuwerburgh, S., & Veldkamp, L. (2010). Information acquisition and under-diversification. *The Review of Economic Studies*, 77(2), 779-805.

Verrecchia, R. E. (1983). Discretionary disclosure. *Journal of Accounting and Economics*, 5, 179-194.

Vidal-García, J. (2013). The persistence of European mutual fund performance. *Research in International Business and Finance*, 28, 45-67.

Wermers, R. (2000). Mutual fund performance: An empirical decomposition into stock-picking talent, style, transactions costs, and expenses. *The Journal of Finance*, 55(4), 1655-1695.

World Commission on Environment and Development. (1987). *Report of the World Commission on Environment and Development: Our Common Future*. https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

Acknowledgements

I wish to thank:

- My supervisors, Associate Professor Laivi Laidroo and Associate Professor Karin Jõeveer, for always being there and not leaving me alone throughout my doctoral studies. They have devoted an infinite amount of their energy and time for me. I really appreciate their willingness to provide invaluable feedback so quickly, sometimes even during night hours. Thank you for guiding me through this winding journey!
- Professor Karsten Staehr, for providing his comments and support whenever I needed advice or a different perspective on my research. I also thank him for spicing-up all the discussions and seminars with his sense of humour.
- Professor Kadri Männasoo, the former Director of Department of Economics and Finance, and the participants of department and doctoral seminars at Tallinn University of Technology for providing complete support, helpful comments and suggestions.
- My fellow doctoral students at the Department of Economics and Finance for their mental support whenever I felt down or wanted to share my happiness. Especially Heili Hein and Helery Tasane, with whom I started this journey and became good friends.
- All my colleagues from the Department of Economics and Finance, for giving me a warm welcome and supporting me throughout these years.
- My co-author of Publication II, Associate Professor Natalie Aleksandra Gurvitš-Suits, for the opportunity to work together.
- Center for Corporate Governance at Copenhagen Business School for hosting me as a visiting researcher.
- Robin Hazlehurst for performing his magic and polishing my writing with his wonderful language editing service.
- My dear mother Anne, father Aare and brother Jan for their endless support throughout my doctoral studies and all other times. It may sound like a cliché, but there really are no words to adequately express my gratitude to you.
- Eesti Pank, Estonian Economic Association, and Baltic Economic Association for recognizing my research and (re)igniting my inspiration.
- Doctoral School in Economics and Innovation, Rein Otsason Foundation and Dora Plus Programme for financial support and the opportunity to attend conferences and special courses.
- Everyone who read this dissertation beyond the abstract.
- This work has received funding from the Estonian Ministry of Education and Research, project “Efficiency in the Financial Sector in the Light of a Changing Regulatory Environment” under Grant No B57; from the European Regional Development Fund, Tallinn University of Technology ASTRA project, TTÜ Development Program 2016-2022 under project 2014-2020.4.01.16-0032; from the European Union’s Horizon 2020 Research and Innovation Programme under Grant Agreement No 952574; from the European Economic Area (EEA) Financial Mechanism 2014-2021 Baltic Research Program under project S-BMT-21-8 (LT08-2-LMT-K-01-073); and from the European Regional Development Fund, Dora Plus Programme under activity T1.1 and T1.2.

Abstract

Essays on Bank Governance and Mutual Fund Performance

Financial intermediaries are without doubt the key drivers for channelling capital to financial markets. Their prosperity is also largely transmitted to other sectors, setting these institutions in the frontline of steering economic health. This makes it important to study financial intermediaries and understand their role in shaping modern financial markets.

This thesis consists of two strands and both concentrate on financial intermediaries. The thesis first sheds light on how the corporate governance structures of banks contribute to their sustainability reporting. This is done by investigating the role of board composition in enhancing the corporate social responsibility (CSR) reporting of the banks. Secondly, the thesis examines mutual fund performance. This involves examining whether the performance of actively managed mutual funds in Central and Eastern Europe (CEE) can be explained by the skill of their fund managers or by luck.

The thesis consists of three published articles. Publications I and II advance the literature on bank governance by investigating the associations between board composition and CSR reporting of banks. Publication I, entitled "CSR reporting in banks: does the composition of the board of directors matter?", studies how the composition of the board of directors contributes to the CSR reporting and the quality of CSR disclosure of listed banks from around the world. The main contribution of the paper is that it controls for regulatory requirements on board composition and CSR reporting.

Publication II, entitled "Banks' CSR reporting – Do women have a say?", investigates the topic of Publication I further by concentrating specifically on the role of female representation on the boards of banks. The paper is the first to focus on the association between female representation on boards and the CSR reporting of listed banks, while controlling for the impact of country-specific gender quotas. Publication II also covered the degree of masculinity or femininity of a country as a factor that could influence the association between CSR disclosure and female representation. Publication I and Publication II both moved forward from the concentration on single-country research that has predominated so far in studies on CSR reporting by banks. The estimations in Publications I and II are based on logistic regressions with bank fixed effects that are run on a global sample of 285 listed commercial banks from 2005 to 2017.

Publication I demonstrated that mandatory governance regulations forced banks to change the composition of their boards of directors and make them more diverse, which should promote their commitment to CSR activities. However, the results showed that the voluntary commitment to CSR by banks that increase their board diversity voluntarily is not substantially different from that of banks that are subject to board composition requirements. Disclosure of CSR reports, even if it is mandatory, is however more likely at banks where the roles of the CEO and the chair of the board are separated voluntarily and where there are more women on boards. Publication II further suggested that the disclosure of CSR reports could be increased if gender quotas were introduced. However, investors need to consider that these quotas might not automatically guarantee that a bank's operations are sustainable. Poorer CSR performance could also occur if women are appointed to boards only to meet the quota and end up with insufficient say. The cultural context suggests that introducing gender quotas for boards could push banks toward greater CSR reporting in masculine countries but not in feminine countries.

Publication III, “Luck and skill in the performance of global equity funds in Central and Eastern Europe”, contributes to mutual fund literature by examining whether actively managed mutual funds in Central and Eastern Europe (CEE) have sufficient managerial talent to manage fund assets skilfully. The paper is the first to examine the performance of individual global equity funds in CEE and separate the skill of their fund managers from luck. The paper uses cross-sectional bootstrap simulations to study the monthly net and gross returns of 175 funds over the period September 2005 to December 2019. Bootstrap simulations are applied to monthly mutual fund returns using the three-factor model of Fama and French (1993), the four-factor model of Carhart (1997), the five-factor model of Fama and French (2015), and regressions run on fund-specific benchmark indexes. The paper goes beyond the existing studies by concentrating on the performance of individual funds rather than on the general performance of mutual funds in CEE. Another novelty is the focus on the CEE region as a whole in contrast to previous studies, which have typically looked at single countries from CEE. The paper also examines the economic value added by fund managers, while investigating the difference between the value added by small funds and that added by large funds.

Publication III found that there are only a few truly skilful global equity funds in CEE, and most of the negative performance among the funds appeared to be due to poor skills, not bad luck. Even though there are some mutual fund managers in CEE who do possess skill, their skill might not be sufficient to cover their fund fees. The results of Publication III thereby indicate that mutual funds in CEE may charge excessively high fees for the abnormal performance they add. This would hint that global equity fund investors in CEE consistently lose money on their mutual fund investments.

Publication III implies that policymakers could consider regulating fund management fees in CEE to some extent. This is important in order to encourage investors in CEE further to continue directing their private savings to financial markets and thereby stimulate economic growth. Publication III also provided evidence that market-tracking passive indexes are the best choice for investors who want to maximise their risk-adjusted returns at the lowest possible cost. However, investors who are highly risk tolerant could consider small actively managed funds in CEE when markets are stable or growing. Similarly, large actively managed funds in CEE could be considered by investors whose risk appetite is a bit lower at any stage of the market cycle. The findings of Publication III may also be transferable to other emerging regions with potential for fast growth and rapidly expanding investment markets.

The three publications in this thesis expand the academic literature in bank governance and mutual fund performance. This allowed it to lay out several practical and policy implications, and to open new avenues for future studies.

Lühikokkuvõte

Uurimused pankade valitsemisest ja investeerimisfondide tulemuslikkusest

Finantsvahendajatel on võtmetähtsusega roll kapitali suunamisel finantsturgudele. Samuti mõjutavad finantsvahendajad majanduse käekäiku tervikuna, kuna nende heaolu kandub suurel määral üle teistesse sektoritesse. Selle tõttu on oluline uurida finantsvahendajaid ning mõista nende rolli finantsturgude kujundamisel.

Käesolev doktoritöö koosneb kahest osast, mis keskenduvad finantsvahendajatele. Esiteks käsitletakse doktoritöös pankade valitsemisstruktuuride seosed nende jätkusuutlikkuse aruandlusega. Täpsemalt keskendutakse panga nõukogu koosseisu rollile pankade sotsiaalse vastutustundlikkuse aruandluse edendamises. Teiseks on doktoritöö keskmes investeerimisfondide tulemuslikkus. Seejuures uuritakse, kas aktiivselt juhitud Kesk- ja Ida-Euroopa (KIE) investeerimisfondide tulemuslikkust saab selgitada nende fondijuhtide oskuste või õnnega.

Käesolev doktoritöö põhineb kolmel publitseeritud uurimusel. Esimene ja teine publikatsioon moodustavad doktoritöö esimese osa ning panustvad pankade valitsemist käsitlevasse kirjandusse. Esimene publikatsioon "Pankade sotsiaalse vastutustundlikkuse aruandlus: kas nõukogu koosseis on oluline?" uurib nõukogu koosseisu rolli sotsiaalse vastutustundlikkuse aruandluse ja selle kvaliteedi edendamises noteeritud pankades üle maailma. Publikatsiooni peamise panusena kontrollitakse, mil viisil kujundavad neid seoseid regulatsioonidest tulenevad nõuded pankade nõukogude kooseisule ja sotsiaalse vastutustundlikkuse aruandlusele.

Teine publikatsioon "Pankade sotsiaalse vastutustundlikkuse aruandlus – kas naistel on sõnaõigus?" laiendab esimest publikatsiooni ning keskendub täpsemalt naiste rollile pankade nõukogudes. Antud publikatsioon on esimene, mis uurib pankade sotsiaalse vastutustundlikkuse aruandluse ning nõukogudes olevate naiste esindatuse vahelisi seoseid, kontrollides seejuures riigispetsiifiliste sookvootide mõju. Lisaks uuritakse, kuidas mõjutavad neid seoseid maskuliinsus-feminiinsus skaalal paigutumisest tingitud riikidevahelised kultuurilised erinevused. Nii esimene kui ka teine publikatsioon keskenduvad 285 noteeritud pangast koosnevale ülemaailmsele valimile perioodil 2005 kuni 2017 ning kasutavad pangaspetsiifiliste fikseeritud efektidega logistilisi regressioone. Sellega eristutakse senisest pankade sotsiaalse vastutustundlikkuse aruandluse kirjandusest, mis on valdavalt läbi viidud üksikute riikide põhjal.

Esimene publikatsioon näitas, et regulatsioonidest tulenevad nõuded pankade valitsemisstruktuurile sundisid panku oma nõukogu koosseisu mitmekesisemaks muutma, mis peaks edendama nende pühendumist sotsiaalse vastutustundlikkusega seotud tegevustele. Kuid uurimusest selgus, et sotsiaalse vastutustundlikkuse aruannete vabatahtlik avaldamine ei erine oluliselt pankades, mis suurendavad oma nõukogu kooseisu mitmekesisust vabatahtlikult või regulatsioonidest tulenevate nõuete alusel. Üldiselt avaldavad sotsiaalse vastutustundlikkuse aruandeid tõenäolisemalt need pangad, mille tegevjuhi ja nõukogu esimehe rollid on lahutatud vabatahtlikult ning need, mille nõukogudes on rohkem naisi. Kusjuures see on nii olenemata, kas aruannete avaldamine on panga jaoks vabatahtlik või regulatsioonidest tulenev kohustuslik tegevus. Teise publikatsiooni tulemused viitavad, et sookvootide kasutuselevõtt soodustab pankade sotsiaalse vastutustundlikkuse aruannete avaldamist. Samas peavad investorid arvestama, et sookvoodid ei pruugi automaatselt tagada pankade tegevuse tegelikku

jätkusuutlikkust. Kehvem sotsiaalne vastutustundlikkus võib esineda ka siis, kui naised määratakse panga nõukogusse ainult sookvoodi täitmiseks ning tegelikult ei anta neile piisavalt sõnaõigust. Keskendudes riikidevahelistele kultuurilistele erinevustele maskuliinsuse-feminiinsuse skaalas, näitavad teise publikatsiooni tulemused, et panga nõukogule kehtestatud sookvoodid võivad soodustada pankade sotsiaalse vastutustundlikkuse aruandlust maskuliinsetes riikides, kuid mitte feminiinsetes riikides.

Kolmas publikatsioon "Õnn ja oskused Kesk- ja Ida-Euroopa globaalsete aktsiafondide tulemuslikkuses" moodustab doktoritöö teise osa. See panustab investeerimisfondide tulemuslikkust käsitlevasse kirjandusse uurides, kas KIE aktiivselt juhitud investeerimisfondide tulemuslikkuse taga on fondijuhtide oskused. Antud publikatsioon on esimene, mis uurib individuaalsete globaalselt investeerivate KIE aktsiafondide tulemuslikkust, eristades seejuures fondijuhtide oskuseid õnnest. Selleks kasutatakse ristlõikelist *bootstrap* simulatsioonanalüüsi ning vaatluse all on 175 investeerimisfondi kuised neto- ja brutotootlused vahemikus 2005. a september kuni 2019. a detsember. *Bootstrap* simulatsioone rakendatakse neljale erinevale mudelile. Esmalt kasutatakse Fama ja Frenchi (1993) kolme, Carharti (1997) nelja ning Fama ja Frenchi (1997) viie muutujaga mudelit. Seejärel viiakse simulatsioonanalüüs läbi fondispetsiifilistel võrdlusindeksitel põhinevatel regressioonidel. Õnne ja oskuste eraldamise kõrval uuritakse ka fondijuhtide poolt lisatavat majanduslikku lisandväärtust, analüüsides seejuures erisusi väikeste ja suurte fondide poolt lisatava väärtuse vahel. Kolmas publikatsioon eristub senistest uuringutest, kuna keskendub individuaalsete KIE investeerimisfondide tootlusele, mitte nende üldisele tootlusele. Lisaks hõlmab analüüs KIE regiooni tervikuna, mitte ainult üksikuid KIE riike.

Kolmanda publikatsiooni tulemustest selgus, et vaid mõned üksikud KIE globaalsed aktsiafondid on oskuslikud ning domineerib negatiivne tulemuslikkus. Kusjuures suurem osa negatiivsest tootlusest tuleneb kehvadest oskustest, mitte halvast õnnest. Kuigi KIE-s on mõned oskuslikud fondijuhid, ei pruugi nende oskused olla fondi haldustasude katmiseks piisavad. See tähendab, et KIE investeerimisfondide haldustasud on liiga kõrged võrreldes nende poolt lisatava ootusi ületava tootlusega (*abnormal return*). Seega viitavad kolmanda publikatsiooni tulemused, et KIE globaalsete aktsiafondide osakuomanikud kaotavad oma investeeringutelt pidevalt raha.

Kolmanda publikatsiooni põhjal võib väita, et poliitikakujundajad võiksid kaaluda fondihaldustasude teatavat reguleerimist KIE-s. See on oluline julgustamaks KIE investoreid jätkuvalt oma sääste finantsturgudele suunama, mis on tähtis ka majanduskasvu stimuleerimise seisukohast. Samuti näitavad kolmanda publikatsiooni tulemused, et investorid, kes soovivad maksimeerida oma riskiga korrigeeritud tootlust madalaima kuluga, võiksid eelistada passiivseid turgu jälgivaid indekseid. Samas võiksid kõrge riskitaluvusega investorid kaaluda väikestesse aktiivselt juhitud KIE investeerimisfondidesse investeerimist stabiilsete või kasvavate turutingimuste korral. Veidi madalama riskivalmidusega investorid võiksid kaaluda suurtesse aktiivselt juhitud KIE investeerimisfondidesse investeerimist olenemata turutingimustest. Kolmanda publikatsiooni tulemused võivad olla ülekantavad ka teistele samalaadsetele regioonidele, millel on suur kasvupotentsiaal ning kiiresti laienevad investeerimisturud.

Käesoleva doktoritöö kolm publikatsiooni laiendavad teaduskirjandust, mis käsitleb pankade valitsemist ning investeerimisfondide tulemuslikkust. Samal ajal antakse mitmeid praktilisi ja poliitilisi soovitusi ning avatakse ka uusi uurimissuundasid.

Appendix 1. Publication I

CSR REPORTING IN BANKS: DOES THE COMPOSITION OF THE BOARD OF DIRECTORS MATTER?

Publication I
Tapver, T. (2019). CSR reporting in banks: does the composition of the board of directors matter? *Quantitative Finance and Economics*, Vol. 3, No. 2, 286-314. DOI: https://doi.org/10.3934/QFE.2019.2.286 (ETIS 1.1)

Quantitative Finance and Economics

QFE, 3(2): 286–314.
DOI: 10.3934/QFE.2019.2.286
Received: 30 March 2019
Accepted: 23 May 2019
Published: 29 May 2019

http://www.aimspress.com/journal/QFE

Research article

CSR reporting in banks: does the composition of the board of directors matter?

Triinu Tapver*

TalTech School of Business and Governance, Tallinn University of Technology, Tallinn, Estonia

* **Correspondence:** Email: triinu.tapver@taltech.ee; Tel: +3726204065.

Abstract: The objective of this paper is to determine the association between the composition of the board of directors and corporate social responsibility (hereafter CSR) reporting of listed banks. Special attention is paid to controlling for the impact of board composition and CSR reporting requirements. Logistic regressions with bank fixed effects are run on a global sample of 285 listed commercial banks from 2005 to 2017. The results demonstrate significant differences in the association between board composition and banks' CSR reporting after correcting for regulatory requirements. Before controlling for regulatory requirements larger board decreases and the presence of women on boards increases the likelihood of banks' CSR disclosure. After controlling for country-level governance regulations on board composition, the absence of CEO duality and inclusion of women on boards contribute to banks' CSR disclosure, only if these are done on a voluntary basis. However, the presence of non-executive board members decreases the disclosure of CSR information even if they are named to boards voluntarily. Controlling for country-level governance regulations together with CSR requirements, leads to the irrelevance of most board composition indicators. Only the result regarding non-executive board members remains the same for voluntary CSR disclosure. Thus, voluntary commitment to CSR of banks increasing their board diversity voluntarily is not substantially different from banks that are subject to board composition requirements.

Keywords: corporate social responsibility (CSR); corporate governance; board of directors; board composition; regulations

JEL Codes: G21, G34, M4, M14

1. Introduction

Banks are subject to great public interest due to their direct or indirect impact on wide variety of interest groups, which leads to more pronounced expectations concerning their transparency and visibility compared to other businesses (John et al., 2016). This has pressured banks to get more involved in sustainability issues and integrate corporate social responsibility (hereafter CSR)[1] into their business strategies and activities (Jackson and Apostolakou, 2010; Roberts, 1992). As long-term strategies and activities are formed by the board of directors (supervisory board in two-tier system), they have a key role in bank's CSR activities (OECD, 1999). Attention on banks CSR reporting has especially increased after the 2008 financial crisis which resulted in bank failures (Laugel and Laszlo, 2009). Due to its increasing importance, CSR has become a tool to enhance shareholders' confidence, banks' ethical behaviour and legitimacy, and one of the key factors to influence banks' competitiveness and success (Deegan, 2002; Saeidi et al., 2015).

The significant impact that banks have on the economy, makes the banking sector also highly regulated and particular emphasis is put on their governance structures and sustainability disclosures (Adams and Mehran, 2003; Laeven, 2013). Country-level regulations often mandate certain features and standards for corporate governance mechanisms and CSR disclosures (Macey and O'Hara, 2003). These restrictions may concern board composition, ownership concentration, management compensation, or effective monitoring structures (Alexander, 2006; Laeven, 2013). However, regulatory frameworks have most commonly been introduced on banks' board composition and CSR disclosure.[2] The pressure to follow such board composition requirements affects banks' risk choices, business strategies and activities including sustainability and social issues (John et al., 2016). Therefore, it is possible that the associations between banks' governance structures and CSR change as a result of the implementation of such mandatory governance regulations. Understanding the impact of such requirements would, in turn, be important for the regulators interested in boosting sustainable banking practices. To the knowledge of the author, this aspect has not been investigated in previous empirical literature on banks' CSR disclosure.

Therefore, this paper determines the association between the composition of the board of directors and CSR reporting of listed banks. Special attention is paid to controlling for the impact of board composition and CSR reporting requirements. To achieve this objective, a global sample of 285 listed commercial banks from 35 countries around the world is used. The analysis covers banks from North America, Western Europe, Central and Eastern Europe, Asia, and Oceania over a period of 2005 to 2017. Multivariate logistic regressions with bank fixed effects are run with several CSR disclosure proxies.

The results demonstrate significant differences in the associations between the board composition and CSR reporting before and after correcting for regulative requirements. Before controlling for regulatory requirements larger board decreases and the presence of women on boards increases the likelihood of banks' CSR disclosure. After controlling for country-level governance

[1] Corporate social responsibility (CSR) is defined by World Bank as "the commitment of business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve quality of life, in ways that are both good for business and good for development" (Petkoski and Twose, 2003).

[2] More information on country-level CSR and board composition regulations in section 2.2.5.

regulations on board composition, the absence of CEO duality and inclusion of women on boards contribute to banks' CSR disclosure, only if these are done on a voluntary basis. However, the presence of non-executive board members decreases the disclosure of CSR information even if they are named to boards voluntarily. Controlling for country-level governance regulations together with CSR requirements, leads to the irrelevance of most board composition indicators. Only the result regarding non-executive board members remains the same for voluntary CSR disclosure. All in all, the findings show that determinants of CSR reporting and voluntary CSR reporting are different.

This paper makes distinctive advances to the literature. First, to the knowledge of the author, this is the first study to investigate associations between the composition of the board of directors and CSR disclosure and its quality, while also considering relevant governance and CSR regulations. This enables to contribute to the CSR literature on banks as well as to the CSR literature concentrating on non-financial firms. Second, this paper complements corporate governance literature by introducing regulation-corrected board composition indicators. This is achieved through the use of a unique hand-collected dataset regarding country-level governance and CSR regulations. Such a focus provides new insights into the linkage between corporate performance and governance characteristics. Third, the focus on a global sample of large listed banks advances to the so far primary concentration on single country CSR studies (e.g., Chakroun et al., 2017; El-Bannany, 2007; Hamid, 2004; Jizi et al., 2014; Khan, 2010; Menassa and Brodhäcker, 2017; Sharif and Rashid, 2014). The use of a global sample permits to investigate the impact of country-level mandatory regulations which cannot be analysed in a single-country setting or in a setting focusing on a very limited area. There through it allows also to provide more generalizable results.

The remainder of this paper proceeds as follows. Overview of relevant literature and regulative framework on CSR and the composition of the board of directors together with hypothesis development is provided in Section 2. Description of research design including sample data, used methodology and variables is provided in Section 3. Section 4 proceeds with the empirical results and discussion. Section 5 concludes.

2. Theoretical framework and hypotheses development

2.1. CSR and corporate governance in banks

Firms' competitiveness and success is not solely dependent on their financial performance but is also directly affected by external environment and gaining the support of various stakeholder groups (Freeman, 1984). Compared to other businesses, banks are visible to wider variety of interest groups and have a fundamental impact on the health of the financial system and overall economy (Adams and Mehran, 2003). As banking system is also highly complex, it is more heavily regulated compared to non-financial sectors (Flannery, 1998). Especially important is to ensure their transparency as emphasized by the Basel Committee on Banking Supervision (2012). However, lack of banks' transparent disclosures along with widespread failures of corporate governance and sustainable banking practices were the main aspects why banks' substantial role in 2008 financial crisis has been highly criticized (Kirkpatrick, 2009; Laugel and Laszlo, 2009). This has especially

increased the pressure to enhance their trustworthiness by improving corporate governance structures and information disclosures (Adams and Mehran, 2003; Laeven, 2013).

Efficient corporate governance of banks is important for ensuring their stability, effectiveness of day-to-day operations, compliance with regulations and for protecting the interests of stakeholders (De Haan and Vlahu, 2016; Macey and O'Hara, 2003). Here, the board of directors has a substantial role, as they form long-term strategies that include sustainability and social issues. The board also monitors the management while proceeding from shareholder interests and ensuring the accuracy of disclosed information (OECD, 1999). However, their activities and efficiency does depend on board's structure and other internal corporate governance mechanisms (Forbes and Milliken, 1999; Jensen and Meckling, 1976).

One of the possibilities to increase the wellbeing of stakeholders and communicate information to society is related to corporate social responsibility (CSR). CSR reporting can be used to communicate bank's economic, social and environmental performance to public. It therefore helps to reduce information asymmetry between bank's shareholders (principal) and managers (agents) that arises from agency problem (Jensen and Meckling, 1976). Moreover, banks can gain support from stakeholders and thus increase their legitimacy through CSR disclosures (Gray et al., 1996; Suchman, 1995). The relevance of CSR information has a constantly increasing trend with more emphasis put on banks' socially responsible behaviour as they use public resources (Macey and O'Hara, 2003). Therefore, CSR has become a tool to increase shareholders' confidence, bank's ethical behaviour and thus one of the key factors to influence bank's competitiveness and long-term success (Saeidi et al., 2015). Compared to non-financial firms, banks' CSR activities mostly concentrate on bank lending, investment, asset management operations and especially great emphasis is put on bribery and money laundering issues (Viganò and Nicolai, 2009).

Increased interest in CSR has led many countries to introduce respective regulatory framework. Some have made CSR disclosure mandatory to certain enterprises, most commonly based on their listing status, industry, state ownership, or some financial indicator. CSR regulations for banks were imposed, for example, 2003 in Austria, 2007 in Malaysia, 2009 in Sweden, 2010 in China, 2012 in Spain, 2016 in Belgium, and 2017 in Hungary and Singapore. Other countries, such as Australia, Canada and Cyprus have soft regulations in the form of principles and recommendations to encourage CSR disclosure.

The increased pressure for banks in engaging in sustainability reporting and the publication of CSR reports has given rise to the question of its accuracy and quality (Gray, 2010). One possibility to assure the quality and trustworthiness of disclosed information is by following some standards or using external independent reviews. The main difference of CSR reporting of banks compared to non-financial firms is that they should adhere to special Global Reporting Initiative Sustainability Reporting Standards (hereafter GRI Standards) designed for the financial services sector, which include specific indicators related to financial products and services. GRI Standards are the first and most widely adopted global standards for sustainability reporting.[3]

Banks are also encouraged to verify their sustainability reports. Although both internal and external assurance of CSR reports are allowed, the latter has become increasingly common.

[3] Based on https://www.globalreporting.org.

Empirical evidence supports the notion that companies in industries with increased societal expectations are increasingly engaging industry-specialist auditors (Sun et al., 2017). Having an audited report provides the readers increased confidence in the quality of sustainability performance data. This enables the company to verify the reported CSR indicators similarly to financial reports.

2.2. Hypotheses development

Structure of the board of directors is one of the corporate governance mechanisms that has an important role in balancing the needs of various stakeholders or in other words, ensure "good corporate governance" (Forbes and Milliken, 1999; Jensen and Meckling, 1976). This indicates that the board has a key role in bank's CSR activities (Michelon and Parbonetti, 2012; Zhuang et al., 2018). Diversity in board's structure is considered one of the key elements to solve complex issues and meet the interests of different stakeholders (Forbes and Milliken, 1999). Board's monitoring ability and legitimation-seeking behaviour should improve and the processes of disclosure and transparency are more likely to be followed (Jensen and Meckling, 1976; O'Dwyer, 2002). Diversity also contributes to board's performance since it increases group flexibility that is especially valuable when the tasks are complicated or change rapidly (Hall, 1971). Therefore, diversity in corporate boards should enhance good corporate governance. Board diversity is usually investigated from the perspective of board composition with the focus on the size of the board, presence of CEO duality, board independence and gender diversity. These aspects are discussed in detail in the following sub-sections.

2.2.1. Board size

The complexity of board's supervisory functions requires suitable monitoring activities and great diversity of board members' skills and experience what is provided by considerable number of board members (García-Sánchez et al., 2011). Larger board would be accompanied with better monitoring mechanisms for fulfilling their duties and which thus leads to greater information disclosure. Board's view on stakeholder expectations would be more diverse and the emphasis on CSR and legitimacy issues is more likely to increase (Pearce and Zahra, 1992). This would indicate that the quantity and quality of CSR reports would increase in companies with larger boards.

There exists also an opposing argument that relies on the proposition that large boards suffer from more severe agency problems reducing their monitoring capacity (Eisenberg at al., 1998). According to this view, smaller boards are more productive and efficient in fulfilling their supervisory functions since they can reach consensus more easily and protect the interests of all stakeholders (Jensen, 1993).

However, banking sector is subject to numerous strict information disclosure requirements that make banks more transparent compared to non-financial companies (John et al., 2010). Disclosed reports require input from wide variety of sources including accounting, financial and sustainability information. As greater number of directors provide more diverse and wider variety of expertise and views, larger boards are expected to focus more likely on CSR disclosure. Hence, this leads to the proposal of the following hypothesis.

H1a: Board size is positively associated with banks' CSR disclosure or its quality.

Despite the fact that board size is an indirect indicator of board diversity, it has not been used extensively in previous research. Only Jizi et al. (2014) have employed it in the context of banks' CSR disclosures and supported a positive association. García-Sánchez et al. (2018) and Birindelli et al. (2018) reported a positive impact of board size on banks' CSR performance. When similar issue has been investigated in non-financial firms, the results have been less conclusive with some of them supporting positive association (e.g., Dias et al., 2017; Esa and Zahari, 2016; Frías-Aceituno et al., 2013; Giannarakis, 2014; Gulzar et al., 2019) and others reporting inconclusive results (e.g., Fuente et al., 2017; Michelon and Parbonetti, 2012).

2.2.2. CEO duality

CEO duality exists when the roles of the CEO and chairman of the board of directors are fulfilled by the same person (Rechner and Dalton, 1991). The main function of the CEO is to formulate firm's strategy and decide on key policy issues. Whereas, the chairman of the board is responsible for board decisions and should supervise the management (including the CEO) (Jensen, 1993). Therefore, the chairman should particularly strive for fulfilling board's supervisory functions. This includes increasing bank's legitimacy by promoting stakeholder interests and assuring to public that bank cares for social and sustainability aspects.

Stakeholder theory posits that the CEO should also act in the interest of shareholders. However, this may not be the case when the CEO fulfils simultaneously the function of the chairman, which involves high conflicts of interest (Jensen, 1993). Board independence may be undermined because the CEO has greater power to guide board decisions and key policies in the direction of his/her personal interests and to the preference of riskier policies (Adams et al., 2005; Srivastav and Hagendorff, 2016). There is also a threat that board decisions could be made based on the information selected by the CEO and not on all relevant information (Jensen, 1993). This indicates that CEO duality may result in leadership and governance issues and is likely to undermine governance mechanisms.

Combining the roles of the CEO and the Chairman can also have benefits. It would enable to reduce agency costs since the ownership and monitoring functions are fulfilled by the same person (Jensen and Meckling, 1976). DeYoung et al. (2013) suggest that CEOs in the banking sector address the interests of shareholders more than in any other industry. This would mean that separating these two roles may not be as important.

In the context of CSR, the outcomes on CSR reporting would depend on the values and priorities of the CEO. Still, CEO duality in itself means that the number of persons determining the direction of the company decreases (Rechner and Dalton, 1991). When the roles of the CEO and the chairman of the board are separated, leadership issues are less likely to emerge and the board has more independence in its decisions (Chau and Gray, 2002). This leads to greater internal control and governance with larger amount and more diverse information disclosed to stakeholders (Jensen, 1993). More focus might be voluntarily put on increasing bank's legitimacy by supporting different shareholder interests and social values with CSR reporting. Therefore, the importance of CSR

reporting is also likely to be lower compared to a bank where no dual role exists. Hence, this leads to the proposal of the following hypothesis:

H2a: CEO duality is negatively associated with banks' CSR disclosure or its quality.

CEO duality aspect has been previously investigated in Jizi et al. (2014) showing that CSR disclosure quality of banks is higher if CEO duality is present. In the context of non-financial firms, the evidence remains either inconclusive (e.g., Fuente et al., 2017; Khan et al., 2013; Michelon and Parbonetti, 2012), supports negative (e.g., Giannarakis, 2014), or positive association (e.g., Dias et al., 2017; Gulzar et al., 2019) with CEO duality.

2.2.3. Board independence

Board independence is considered as one of the most efficient governance mechanisms for monitoring the management and proceeding from shareholder interests (Fama and Jensen, 1983). Independence is related to the presence of non-executive directors who, according to the agency theory, are efficient board monitors (Gillette et al., 2003; Jensen and Meckling, 1976). They are expected to fulfil their duties as independent members and ensure firm's proper conduct. While proceeding directly from their responsibilities, non-executive directors should employ greater objectivity and independence in their assignments than executive directors (Prado-Lorenzo and García-Sánchez, 2010). Hence, they would wish to strive for firm's legitimacy by ensuring its compliance with regulations and meeting the expectations of external environment (Pfeffer and Salancik, 1978). This would lead to them to put greater emphasis on information disclosure quality and quantity. It could particularly be the case for banks, which are highly visible and subject to public interest. Therefore, the pressure to integrate social and environmental activity into their main business functions might be more pronounced (Barako and Brown, 2008).

Reputational concerns of non-executive directors are also considered to be higher than those of executive directors (Fama and Jensen, 1983; Harris and Raviv, 2006). Non-executive directors may be led by their concerns for career and reputation and therefore they might avoid risky behaviour that could affect these negatively (Holmström, 1999). Since CSR information is obtained from management, there is a risk of receiving manipulative or misleading information (Kravet and Muslu, 2013). If this is the case, non-executive directors might reduce or even avoid CSR disclosure. The situation could be similar if selected non-executive board members are hired purely for their financial expertise, or they tend to prioritise historically available financial information instead of CSR information (Arora and Dharwadkar, 2011; Baysinger and Hoskisson, 1990).

However, executive directors with strong financial expertise are already present in the boards of financial institutions. This reduces the need to select non-executive directors solely based on their financial expertise, but rather on their other qualities such as independence. Hence, this leads to the proposal of the following hypothesis.

H3a: Non-executive board members are positively associated with banks' CSR disclosure or its quality.

This expectation has been supported in Barako and Brown (2008), Jizi et al. (2014), Khan (2010) and Sharif and Rashid (2014), for Kenyan, US, Bangladeshi and Pakistan banks, respectively. García-Meca et al. (2018) reported a positive association on a multi-country sample. Inconclusive results have

been reported in Hossain and Reaz (2007) for Indian banks. In terms of CSR performance, Birindelli et al. (2018) showed a negative association and García-Sánchez et al. (2018) a positive association. When looking at non-financial firms, the results have been more mixed. Some studies report positive association with CSR disclosure score (e.g., Cucari et al., 2018; Esa and Zahari, 2016; Fuente et al., 2017; Gulzar et al., 2019; Khan et al., 2013). Others provide inconclusive results (e.g., Dias et al., 2017; Frías-Aceituno et al., 2013; Michelon and Parbonetti, 2012; Prado-Lorenzo et al., 2009). On the other hand, quite a number of studies have reported even negative association (e.g., Bansal et al., 2018; Prado-Lorenzo and García-Sanchez, 2010; Sundarasen et al., 2016).

2.2.4. Women on boards

Diversity in corporate boards should increase board's independence and focus on the interests of different stakeholders (Forbes and Milliken, 1999). One of the most common approaches to address board's diversity is to consider its gender diversity or more narrowly, the presence of women on boards (De Haan and Vlahu, 2016).

Literature on the gender-based leadership styles suggest that there are differences between the leadership behaviour of men and women. Women tend to be more democratic or participative leaders and adopt less autocratic or directive leadership style than men (Eagly and Johnson, 1990). They also integrate the roles of wife and mother in their behaviour and show more passion towards diversity, intercultural empathy, and diplomacy (Betz et al., 1989; Javidan et al., 2016). Moreover, Appelbaum et al. (2003) show that women's leadership styles are more effective within consensually driven organizational structures that require cooperation and team orientation. This indicates that women should have a positive influence on board's functioning as they should promote collaboration and consensual agreements. More diverse as well as broad issues are integrated into discussions and decision-making. Greater focus is put on the interests of various stakeholders alongside with ethical and social matters (Ford and Richardson, 1994).

Therefore, the presence of women on the board of directors should promote bank's legitimacy-seeking behaviour and enhance reporting activities. They also contribute to higher levels of social performance (Siciliano, 1996). Therefore, women board members should encourage CSR disclosures alongside with financial information. Hence, this leads to the proposal of the following hypothesis.

H4a: Women on boards are positively associated with banks' CSR disclosure or its quality.

Positive association between the presence of women board members and banks' CSR disclosures is supported in Barako and Brown (2008) in the context of Kenyan banks, in Kiliç et al. (2015) for Turkish banks and in García-Meca et al. (2018) and on a multi-country sample. Khan (2010) reports inconclusive results for banks in Bangladesh. In terms of CSR performance, Birindelli et al. (2018) and García-Sánchez et al. (2018) reported positive association. However, female representation has achieved significantly greater attention in the studies on non-financial firms. These papers provide more dominant support for positive association between CSR disclosure and female representation (e.g., Bear et al., 2010; Cabeza-García et al., 2018; Gulzar et al., 2019; Dienes and Velte, 2016; Frías-Aceituno et al., 2013; Fuente et al., 2017). Still, some studies have also reported inconclusive results (e.g., Giannarakis, 2014; Zhuang et al., 2018) or even negative associations (Cucari et al., 2018).

2.2.5. Regulative context

A wide variety of academic literature have studied banks' CSR disclosure and performance from the perspective of corporate governance or more narrowly, its relation with the composition of the board of directors (De Haan and Vlahu, 2016). Despite the wide coverage of the issue, to the knowledge of the author, none of the previous empirical studies have controlled for the impact of regulations that many countries have imposed on the composition of the board of directors.

The level and time of legal enforcement on the composition of the board of directors varies widely between countries. The establishment of country-level requirements and quotas on board composition characteristics such as on board size, CEO duality, proportion of non-executive board members and gender diversity is most widespread. Whereas, this approach has been particularly common among European countries. Requirements regarding all of the above-mentioned aspects have been imposed in Norway. Other countries have enforced requirements only on some characteristics of the board of directors.[4] Depending on the country, the minimum requirements on the size of the board of directors range from two to five persons. Quotas on the presence of non-executive directors range from 20 to 50 percent or from one to three persons out of the total board size. Gender quotas range from 20 to 40 percent out of the total board size.

However, some countries have implemented soft regulations or use the mixture of both. Soft regulations are most commonly in the form of codes of good corporate governance that include recommendations regarding the composition of the board. For example, in Australia, Austria, Cyprus, Czech Republic, Nigeria, Singapore, Sweden, United Kingdom, and in the United States some board composition characteristics are written in the code and recommended, while some others are mandatory.

Mandatory requirements on the characteristics of the board of directors have an impact on the exact composition of banks' boards. More precisely, the requirements are set in a way to enhance board's heterogeneity. This leads to greater diversity and independence which are seen to improve the efficiency of board's supervisory activities as well as ensure that the interests of different stakeholders are taken into consideration (Fama and Jensen, 1983; Forbes and Milliken, 1999). Thus, it suggests that after requirements are set, boards should put more emphasis on disclosing more diverse information and improving banks' CSR reporting activities. This should be especially the case in boards that do not only strive for complying with current regulations but voluntarily put additional effort into increasing board's diversity. Therefore, boards where the mandatory

[4] For example, countries such as Australia, Belgium, Canada, China, Czech Republic, Germany, Spain, France, the United Kingdom, Greece, Hong-Kong, Hungary, Indonesia, India, Italy, Japan, South Korea, Norway, Philippines, Poland, Russia, Sweden, Singapore, Turkey, Taiwan have established the requirements on the minimum number of board members.
The presence of CEO duality is prohibited in Cyprus, the Netherlands, Norway, Russia and Sweden.
Board's independence with regards to the minimum quotas on non-executive board members are enforced for example in Belgium, Canada, Cyprus, Germany, Spain, Greece, Hong Kong, Hungary, Indonesia, India, Italy, Japan, South Korea, Malaysia, Norway, Philippines, Portugal, Russia, Thailand, Turkey, Taiwan and the United States.
Gender quotas on the board of directors are established for example in Belgium, Canada, Finland, Germany, Spain, France, Iceland, India, Israel, Italy, Kenya, the Netherlands and Norway.

requirements and quotas are exceeded, should perform better in terms of CSR disclosure quantity and quality. Hence, this leads to the proposal of the following hypotheses.

H1b: Banks' CSR disclosure or its quality improves, the more board size exceeds the required level.

H2b: Banks' CSR disclosure or its quality improves if the positions of the CEO and chairman of the board are separated voluntarily.

H3b: Banks' CSR disclosure or its quality improves, the more the proportion of non-executive board members exceeds the required level.

H4b: Banks' CSR disclosure or its quality improves, the more the proportion of women board members exceeds the required level.

These hypotheses have not been tested in any of the previous empirical studies on CSR disclosure.

3. Research design

3.1. Sample and data

The sample covers commercial listed banks over a period of 2005 to 2017. Sample was restricted only to listed banks due to their greater stakeholder-orientation and exposure to governance requirements.[5] Banks from some regions reported large amounts of incomplete data. Therefore, African, Caribbean, Central American, Middle Eastern and South American banks were excluded from the analysis. Final sample covers banks from North America, Western Europe, Central and Eastern Europe, Asia, and Oceania. The focus on banks from different parts of the world is required for the investigation of regulatory impacts which vary across countries. To ensure that banks have a similar level of regulatory scrutiny and public visibility, the sample was further refined by excluding all banks which recorded less than 25 billion in total assets.

The final sample consists of 285 listed commercial banks from 35 countries around the world and covers a period of 2005 to 2017. There are 83 to 186 banks per year and 1 to 27 banks per country per year. 31 countries covered in the sample have introduced mandatory regulations regarding some characteristic(s) of the composition of the board of directors. While 24 countries have made the disclosure of the CSR report mandatory.

The data were obtained from a variety of sources. Bank specific data were collected from Thomson Reuters Eikon database. There exists no database for obtaining information on regulatory requirements for board of directors and CSR across countries. Therefore, this information was hand-collected using different sources. Country-level regulatory requirements regarding the composition of the board of directors were gathered through OECD's Corporate Governance Factbooks and Codes of Corporate Governance of different countries. Information regarding country-level CSR regulations was collected using the websites of Global Reporting Initiative and The Reporting

[5] Other types of financial institutions, for example, credit unions, saving institutions and central reserve depositories, were excluded from considerations to focus only on financial institutions, which provide similar services and are subject to the same regulations and disclosure requirements.

Exchange.[6] This information was structured, coded and combined into a unique governance and CSR regulations dataset that has not been used before.

3.2. CSR disclosure variables

Table 1 provides the descriptive statistics of all disclosure variables alongside with all bank-specific governance and financial variables used in this study. Banks' CSR disclosure is assessed with respect to both, CSR reporting and voluntary CSR reporting. In line with previous literature, this paper uses binary dummy variables for analysing the disclosure decision and the quality of CSR report (e.g., Gamerschlag et al., 2011; Sierra-García et al., 2015). CSR report in the context of this study is either a stand-alone report or a report contained in a more general annual report of the bank. Report's quality encompasses whether the CSR report is prepared following the GRI Standards or has been externally assured (audited).

In order to assess the CSR disclosure of banks, three baseline disclosure proxies are used. First disclosure proxy is a binary dummy *dCSR* and captures the decision to disclose a CSR report. If the bank discloses a CSR report *dCSR* takes a value of 1, 0 otherwise. As Thomson Reuters Eikon dataset includes also information about the quality of CSR report, two other proxies were created. First of them is a dummy *dGRI* that is equal to 1 if the bank has prepared their CSR report by following the GRI Standards, 0 otherwise. Second dummy is *dAUD* that is equal to 1 if bank's CSR report has been audited by an external auditor, 0 otherwise. This approach has also been used in previous studies (e.g., Legendre and Coderre, 2013; Sierra et al., 2013; Sierra-García et al., 2015).

Secondly, to assess the bank's movement to voluntary CSR reporting, alternative disclosure proxy *rCSR* is created. This variable corrects CSR indicator for country-level regulations regarding CSR reporting requirements for listed banks. Thus, *rCSR* is equal to 1 if bank has a CSR report and it is not required by regulations, 0 in all other cases. These include three different situations: first, CSR report exists and is required by regulations; second, CSR report does not exist and is not required and third, CSR report does not exist but is required by regulations. The use of *rCSR* enables to check robustness of estimates after controlling for CSR country-level regulations.

3.3. Governance indicators

The main focus of this paper is the role of the board on banks' CSR reporting. To analyse this issue, several variables characterizing the composition of bank's board are created. Regression models employ four different baseline or alternative board indicators. First baseline variable characterizes bank's board in terms of its size (*Bsize*). Second baseline indicator is a dummy variable that considers the separation of the positions of the CEO and the chairman of the board (*CEOch*). Third baseline variable measures the proportion of non-executive board members (*Nonex*). Last baseline variable captures female representation in terms of the percentage of women on bank's board (*Wom*).

[6] Country-specific Codes of Corporate Governance Codes were accessed through the website of European Corporate Governance Institute (ECGI) (https://ecgi.global/). CSR regulations were collected through https://www.globalreporting.org and https://www.reportingexchange.com.

Table 1. Descriptive statistics of variables.

Variable	Description	Obs	Mean	Std. Dev.	Min	Max
	Disclosure variables					
dCSR	1 if the bank discloses CSR report, 0 otherwise	1,837	0.60	0.49	0.00	1.00
dGRI	1 if the bank has prepared their CSR report by following the GRI Standards, 0 otherwise	1,837	0.34	0.47	0.00	1.00
dAUD	1 if bank's CSR report has been audited by an external auditor, 0 otherwise	1,837	0.44	0.50	0.00	1.00
rCSR	1 if bank's actual CSR reporting exceeds expectations, 0 otherwise	1,837	0.43	0.49	0.00	1.00
	Governance indicators					
Bsize	number of Board members	1,797	13.60	4.23	3.00	44.00
CEOch	1 if CEO duality exists, 0 otherwise	1,843	0.29	0.45	0.00	1.00
Nonex	percentage of non-executive Board members (%)	1,775	76.17	23.75	0.00	100.00
Wom	percentage of women on Board (%)	1,768	14.55	12.48	0.00	61.54
rBsize	percentage of Board members exceeding the required level (%)	1,007	353.47	173.67	−40.00	950.00
rCEOch	1 if CEO-chairman separation exists but is not required, 0 otherwise	1,843	0.67	0.47	0.00	1.00
rNonex	percentage of non-executive members on Board exceeding the required level (%)	1,772	61.80	27.94	−20.00	100.00
rWom	percentage of women on Board exceeding the required level (%)	1,768	12.30	12.82	−33.00	61.54
	Financial indicators					
roa	return assets calculated on the basis of profit before taxes (%)	2,699	0.89	0.95	−4.94	4.97
e/ta	equity to assets (%)	2,699	6.99	2.93	−3.48	36.40
pc	combined performance indicator	2,095	−0.30	0.76	−2.65	3.85
size	natural log of total bank assets	2,699	18.49	1.22	17.04	21.93
liq/ta	liquid assets to total assets (%)	2,692	9.62	7.18	0.00	55.86
l/ta	loans to assets (%)	2,693	60.03	12.45	6.58	97.91
pe/ta	personnel expenses to assets (%)	2,101	0.89	0.43	0.04	3.21

Since this paper also considers the role of country-level governance regulations, alternative regulation-corrected variables characterizing bank's board of directors are created. As the regulations on board composition may greatly influence the conclusions on CSR disclosure determinants, it is important to take regulatory framework into account. Regulation-corrected variables are created using the principle that what matters is how much a specific board indicator exceeds the regulatory minimum in percentage terms.

First regulation-corrected variable captures the proportion of board members that exceeds the required minimum board size (*rBsize*). This variable measures the relative difference between the required minimum and actual board size, calculated as: (actual-required)/required x100. For example, if country-level regulations require that the minimum board size is 5 members but the bank board has 7

members, then *rBsize* would be (7 − 5)/5 × 100 = 40%. If the actual number of board members is 4, then *rBsize* would be (4 − 5)/5 × 100 = −20%. Second alternative variable takes into account whether the CEO-chairman separation is required by the regulations in a specific country (*rCEOch*). This dummy variable takes a value of 1 if CEO-chairman separation is not required but does exist in a specific bank, 0 in all other cases. Therefore, *rCEOch* captures voluntary separation of the roles of the CEO and the chairman of the board. Third regulation-corrected indicator captures the proportion of non-executive board members that exceeds the required minimum level (*rNonex*). This variable measures the difference between the minimum required and actual proportion of non-executive board members. For example, if country-level regulations require the minimum of 20% non-executive board members, but the bank has 30%, then *rNonex* would be (30%−20%) = 10%. And if the actual is only 10%, then *rNonex* would be (10%−20%) = −10%. Models also include similar alternative female representation variable (*rWom*). This variable captures the percentage of women on specific bank's board that exceeds the required mandatory level of the country. For example, if the national requirement is 20% and the bank has female proportion at 40%, the *rWom* would be (40% − 20%) = 20% and if the actual is 10%, the *rWom* would be (10%−20%) = −10%.

3.4. Financial indicators

This study employs two types of bank-specific financial variables similarly to previous literature. First, larger banks are more visible and tend to attract more pressure to respond to the demands of different stakeholders. Thus, they are usually more likely to engage in the disclosure of non-financial information. Most previous studies have reported a significant positive association between company size and CSR disclosure (e.g., Dias et al., 2017; Fuente et al., 2017; García-Meca et al., 2018; Gulzar et al., 2019; Hamid, 2004; Hossain and Reaz, 2007; Frías-Aceituno et al., 2013; Khan, 2010; Khan et al., 2013; Sharif and Rashid, 2014).

Second type of financial variables consider bank performance. These are most widely-used financial variables in previous CSR studies. However, the results have been contradictory, showing either positive (e.g., Jizi et al., 2014; Khan, 2010; Sharif and Rashid, 2014) or negative association (e.g., El-Bannany, 2007; García-Meca et al., 2018) or reporting inconclusive results (e.g., Hamid, 2004). In this study, performance is measured in terms of return on assets (*roa*), equity ratio (*e/ta*) or with combined performance indicator (*pc*) that captures the health of financial institutions. Variable *pc* is constructed from CAMEL indicators (capital, asset quality, management, earnings, liquidity). In line with previous literature capital proxy is equity to total assets (*e/ta*); asset quality proxy is loans to assets (*l/ta*); management proxy is personnel expenses to assets (*pe/ta*), earnings proxy is return on assets (*roa*); and liquidity proxy is liquidity ratio (*liq/ta*) (e.g., Boyacioglu et al., 2009; Laidroo, 2016; Roman and Şargu, 2013).

Table 2 presents pairwise correlations between all explanatory variables. As expected, significant correlations exist between baseline and respective regulation-corrected board composition variables. Thus, these indicators are included in the models separately. Moderate correlations exist between bank performance indicators as *roa* and *e/ta* are both components of *pc*. For this reason, *pc* is used in separate models.

Table 2. Pairwise correlations between explanatory variables.

	Bsize	*CEOch*	*Nonex*	*Wom*	*rCEOch*	*rBsize*	*rNonex*	*rWom*
Bsize	1.00							
CEOch	0.03	1.00						
Nonex	0.12	0.05	1.00					
Wom	0.03	−0.09	0.39	1.00				
rCEOch	0.00	−0.92	−0.10	−0.03	1.00			
rBsize	0.83	0.04	0.20	0.20	−0.03	1.00		
rNonex	0.15	−0.21	0.77	0.31	0.13	0.31	1.00	
rWom	0.00	−0.03	0.34	0.79	−0.06	0.12	0.26	1.00
roa	−0.16	0.07	0.16	0.02	−0.05	−0.22	0.07	0.13
e/ta	−0.08	0.21	0.16	−0.01	−0.14	−0.26	−0.13	0.03
pc	−0.05	0.04	0.13	0.07	−0.01	0.04	−0.01	0.07
size	0.20	−0.06	0.15	0.28	0.01	0.47	0.25	0.22
liq/ta	0.01	−0.15	0.14	0.17	0.11	0.15	0.28	0.07
l/ta	−0.11	0.06	0.00	−0.07	−0.07	−0.26	−0.01	−0.05
pe/ta	0.03	0.37	0.26	−0.03	−0.28	0.01	−0.29	0.03
	roa	*e/ta*	*pc*	*size*	*liq/ta*	*l/ta*	*pe/ta*	
roa	1.00							
e/ta	0.47	1.00						
pc	0.43	0.37	1.00					
size	−0.05	−0.22	0.28	1.00				
liq/ta	0.03	−0.11	0.68	0.36	1.00			
l/ta	0.02	0.09	−0.68	−0.42	−0.41	1.00		
pe/ta	0.31	0.44	0.20	−0.13	−0.21	0.16	1.00	

Notes: For variable descriptions, see Table 1.

3.5. Model specification

Logit regressions are run to examine the associations between (voluntary) CSR disclosure and previously described governance and financial indicators. This approach is used in numerous previous CRS studies (e.g., Dhaliwal et al., 2011; Jackson and Apostolakou, 2010; Legendre and Coderre, 2013; Sierra-García et al., 2015). The model used in this paper is stated as:

$$P(CSR_{it} = 1) = \beta_1 Bsize_{it-1} + \beta_2 CEOch_{it-1} + \beta_3 Nonex_{it-1} + \beta_4 Wom_{it-1} + \beta_5 size_{it-1} + \beta_6 Perf_{it-1} + \alpha_i + \varepsilon_{it} \quad (1)$$

Dependent variable CSR is a dummy of bank i on year t which can be either one of the baseline CSR dummies (*dCSR*, *dGRI* or *dAUD*) or country-level regulation-corrected dummy *rCSR* in robustness tests. *Bsize*, *CEOch*, *Nonex* and *Wom* refer to either baseline indicators characterizing bank board (*Bsize*, *CEOch*, *Nonex* and *Wom* respectively) or alternative country-level regulations corrected indicators (*rBsize*, *rCEOch*, *rNonex* and *rWom* respectively). First type of model estimations include all baseline indicators characterizing bank board at the same time and the second

type of model estimations include country-level regulations corrected indicators at the same time. The models also include financial variables characterizing bank size in terms of natural logarithm of total assets (*size*) and bank performance (*Perf*). Performance is measured in terms of return on total assets (*roa*) and equity to assets (*e/ta*) as baseline indicators, and replaced by combined performance indicator (*pc*) in robustness tests.

All indicators, except regulation-adjusted indicators (*rBsize*, *rCEOch*, *rNonex* and *rWom*), are lagged by one year in the models to ensure weak exogeneity of explanatory variables. Regulation-adjusted indicators are not lagged to ensure that CSR disclosure is compared with governance regulations in force. All estimations use bank fixed effects. This enables to control for unobserved heterogeneity across banks, and for all country-specific indicators, which remain time-invariant. Thus, the models focus on what determines the change between (voluntary) CSR report disclosure and non-disclosure. This means that all bank-year observations in which the disclosure variable remained unchanged compared to a year earlier, are dropped in the estimation process. The results are reported using odds ratios.

4. Results and discussion

4.1. Board of directors and CSR disclosure

Table 3 presents the descriptive statistics of board composition indicators depending on the CSR disclosure group. Panel A of Table 3 shows the statistics depending on whether the CSR report has been disclosed (*dCSR* = 1) or not (*dCSR* = 0). On average, boards are larger (*Bsize*) in those banks that disclose CSR reports. Similarly, CEO duality (*CEOch*) is less present in disclosing banks. Moreover, there are on average 81.0% non-executive (*Nonex*) and 16.6% women board members (*Wom*) in banks disclosing a CSR report, compared to respectively 68.2% and 9.2% in banks not disclosing a CSR report.

The differences are a bit smaller, when considering board composition indicators that are adjusted with country-level regulatory requirements (*rBsize*, *rCEOch*, *rNonex*, *rWom*). On average, the required size of the board (*rBsize*) is greatly exceeded in both groups, but still more by banks disclosing a CSR report. Whereas, the minimum level for the latter is equal to zero, indicating that banks that disclose CSR reports always comply with regulations or name even more board members than required. The voluntary separation of the roles of the CEO and chairman of the board of directors (*rCEOch*) is higher in banks disclosing a CSR report. The required level of non-executive board members (*rNonex*) is exceeded on average by 68.4% in banks that disclose CSR report, compared to 51.4% in banks not disclosing. Similar tendency is detected in terms of the required level of women on boards (*rWom*). The mean value exceeding the country-specific quota is 14.4% in those banks who disclose and 9.3% in banks that do not disclose CSR reports.

Table 3. Descriptive statistics of board composition indicators depending on CSR disclosure group.

Variable	Mean	St.Dev	Median	Min	Max	Mean	St.Dev	Median	Min	Max	Sign.
Panel A			*dCSR* = 0					*dCSR* = 1			
Bsize	13.2	4.3	12.0	1.0	30.0	14.0	4.4	14.0	3.0	44.0	***
CEOch	0.4	0.5	0.0	0.0	1.0	0.3	0.4	0.0	0.0	1.0	***
Nonex	68.2	32.4	81.8	0.0	100.0	81.0	15.9	83.9	0.0	100.0	***
Wom	9.2	10.2	7.1	0.0	61.5	16.6	12.4	15.0	0.0	60.0	***
rBsize	320.8	161.8	300.0	−40.0	900.0	376.3	178.7	366.7	0.0	950.0	***
rCEOch	0.6	0.5	1.0	0.0	1.0	0.7	0.5	1.0	0.0	1.0	***
rNonex	51.4	32.8	52.8	−20.0	100.0	68.4	22.0	72.4	−7.7	100.0	***
rWom	9.3	10.7	7.3	−33.0	61.5	14.4	13.7	13.3	−33.0	60.0	***
Panel B			*rCSR* = 0					*rCSR* = 1			
Bsize	13.5	4.1	13.0	1.0	30.0	13.9	4.6	14.0	3.0	44.0	**
CEOch	0.4	0.5	0.0	0.0	1.0	0.2	0.4	0.0	0.0	1.0	***
Nonex	73.3	28.3	83.3	0.0	100.0	79.9	17.3	83.2	0.0	100.0	**
Wom	12.8	11.6	11.1	0.0	61.5	15.1	12.7	12.5	0.0	60.0	***
rBsize	353.6	163.9	333.3	−40.0	950.0	353.3	186.3	366.7	0.0	950.0	
rCEOch	0.6	0.5	1.0	0.0	1.0	0.7	0.5	1.0	0.0	1.0	***
rNonex	55.2	30.2	58.9	−20.0	100.0	70.4	22.1	74.7	−7.7	100.0	***
rWom	11.6	11.8	10.0	−33.0	61.5	13.4	14.1	11.1	−33.0	60.0	***

Notes: For variable descriptions, see Table 1. Panel A shows the statistics when comparable group variable is baseline CSR disclosure proxy (*dCSR*). Panel B shows the statistics when comparable group variable is country-level regulation-corrected CSR disclosure proxy (*rCSR*). Last column reports the results of Wilcoxon rank-sum (Mann-Whitney) test for statistical difference of group means. *, **, *** denote significance at 10%, 5%, 1% levels.

Panel B of Table 3 shows the descriptive statistics of all board composition indicators when banks' CSR disclosure is corrected with country-level regulations. Thus, Panel B provides the statistics depending on whether the CSR report has been disclosed voluntarily (*rCSR* = 1) or not (*rCSR* = 0). In this case, similar tendencies can be detected as in Panel A. Banks that disclose CSR report voluntarily have on average larger board (*Bsize*), more non-executive (*Nonex*) as well as women board members (*Wom*) and CEO duality (*CEOch*) is less present. However, the differences between groups are smaller compared to ones in Panel A.

When board composition indicators and CSR disclosure are both corrected with country-level regulatory requirements, then the statistically significant difference between mean value of exceeding required size of the board (*rBsize*) disappears between groups. In all other cases, the differences between means remain statistically significant. Voluntary separation of the CEO and chairman of the board (*rCEOch*) is on average higher in banks disclosing CSR report voluntarily. Voluntarily disclosing banks have on average 70.4 percentage points more non-executive board members (*rNonex*) and 13.4 percentage points more women on boards (*rWom*) than required by the quotas. On average these quotas are also exceeded by other banks, yet not that greatly as by those of disclosing CSR report voluntarily.

Therefore, larger mean values for (voluntarily) disclosing banks suggest that there appears to be positive association between board size, separation of the CEO and chairman, non-executive board members and women on boards as proposed by hypotheses in section 2.2. To further test this result, logistic regressions were run and corresponding results are presented in the next sub-sections.

4.2. Board of directors as CSR disclosure determinant

Results of logistic regressions with three different baseline dependent dummy variables (*dCSR*, *dGRI*, *dAUD*) are presented in Table 4. Contrary to H1a and Jizi et al. (2014), board size (*Bsize*) exhibits strong negative association with the disclosure of CSR report in M1. Negative association remains for when the report followed GRI Standards or the report was assured externally. However, after board size is controlled for country-level requirements (*rBsize*) in M2, the significant association disappears providing inconclusive results with regards to H1b. This suggests that exceeding the required minimum quota for board size itself is not an important factor for CSR reporting. For many countries in the sample there are minimum (and maximum) quotas for the size of the board and those are mostly exceeded.[7] Therefore, board size becomes irrelevant after controlling it for regulatory requirements. However, results in Table 4 for models M2 suggest that what matters for CSR disclosure is the composition of the board.

The presence of CEO duality (*CEOch*) remains insignificant in all M1 specifications providing inconclusive results with respect to H2a. In terms of previous studies, Jizi et al. (2014) have shown that CSR disclosure quality of banks is higher if CEO duality is present. In the context of non-financial firms, the evidence has remained mixed (e.g., Dias et al., 2017; Fuente et al., 2017; Giannarakis, 2014; Gulzar et al., 2019; Khan et al., 2013; Michelon and Parbonetti, 2012).

However, results for CEO duality change after the indicator is corrected with country-level regulations in M2. The odds of starting to disclose a CSR report are higher when the roles of the CEO and the chairman of the board are separated and it is not required by regulations (*rCEOch*). This is in line with H2b and indicates that only those banks, where the roles of CEO and board's chairman are separated voluntarily, are more likely to disclose CSR report. In that sense, leadership issues are less likely to emerge and the board has more independence in its decisions (Chau and Gray, 2002). More focus might be voluntarily put on increasing bank's legitimacy by supporting different shareholder interests and social values with CSR reporting.

[7] Only one bank had less members on the board than the minimum requirement (*rBsize* was −40% in the year 2010); and only two banks had the level exactly equal to the minimum requirement (*rBsize* was 0% for one in 2014 and for other in 2014 and 2015).

Table 4. Logistic regression results of CSR disclosure and quality.

Dependent variable	*dCSR*		*dGRI*		*dAUD*		*dCSR*		*dGRI*		*dAUD*	
Model	M1a		M1a		M1a		M2a		M2a		M2a	
l.Bsize	0.841	***	0.913	**	0.907	*						
	(0.039)		(0.042)		(0.050)							
l.CEOch	0.632		1.361		0.972							
	(0.218)		(0.495)		(0.443)							
l.Nonex	0.988		0.987		0.982							
	(0.014)		(0.012)		(0.013)							
l.Wom	1.067	***	1.020		1.053	***						
	(0.019)		(0.015)		(0.018)							
rBsize							0.998		1.000		0.996	
							(0.002)		(0.002)		(0.003)	
rCEOch							2.143	*	0.708		3.405	*
							(0.925)		(0.327)		(2.138)	
rNonex							0.962	***	0.976	*	0.999	
							(0.012)		(0.012)		(0.014)	
rWom							1.036	*	0.991		1.031	
							(0.021)		(0.018)		(0.022)	
l.size	1368.3	***	521.6	***	1791.1	***	230.4	***	528.8	***	910.1	***
	(943.6)		(308.3)		(1489.8)		(170.4)		(415.5)		(864.4)	
l.roa	0.741	***	0.769	**	0.673	***	0.573	**	0.565	**	0.798	*
	(0.082)		(0.091)		(0.079)		(0.158)		(0.126)		(0.098)	
l.e/ta	1.507	***	1.491	***	1.463	***	1.417	**	1.444	***	1.027	
	(0.161)		(0.166)		(0.170)		(0.193)		(0.202)		(0.113)	
No. of obs.	1018		904		681		566		534		387	
Pseudo R2	0.51		0.43		0.48		0.41		0.41		0.44	
Chi2	395.2	***	321.6	***	276.1	***	179.8	***	179.1	***	149.2	***

Notes: For variable descriptions, see Table 1. Dependent variable is one of the baseline CSR disclosure dummies (*dCSR*, *dGRI* or *dAUD*). All explanatory variables except country-level regulation corrected variables (*rCEOch*, *rBsize*, *rNonex*, *rWom*) are lagged by one year. Table presents odds ratios. Standard errors in parentheses. *, **, *** denote significance at 10%, 5%, 1% levels.

However, what is interesting is that the results are mixed in terms of the quality of CSR report in M2 specifications. Positively significant association of voluntary CEO-chairman separation remains on having an audited CSR report (*dAUD*) but disappears when the report is prepared following GRI Standards (*dGRI*). This might indicate that boards, where the chairman's role is voluntarily separated from the CEO, are more concerned with the quality of sustainability data and different stakeholder interests. Having an externally verified (audited) report provides the readers increased confidence in the quality of sustainability performance data and also makes it more likely that the data is used in management's decision-making (Global Reporting Initiative, 2013). While GRI Standards do suggest the use of external assurance, it would not be such an important factor by

itself. Audited report takes one step further as it adds reliability aspect in addition to the qualitative aspect already provided by GRI Standards.

Therefore, only boards that are truly concerned with the quality of sustainability and shareholder interests, put extra verification effort into CSR reporting. After all, the role of the board of directors is to promote interests of different stakeholders and long-term strategies (OECD, 1999). This is especially important for large listed banks that are highly visible to public and need to gain legitimacy for ensuring long-term success by carrying on social values in their activities (Laugel and Laszlo, 2009). Moreover, Table 4 indicates that voluntary CEO-chairman separation (*rCEOch*) is the only significant determinant of staring to disclose an externally verified (audited) CSR report. This could be explained by the fact that the chairman is responsible for board decisions. Therefore, the chairman is the one who should particularly strive for increasing bank's legitimacy by promoting stakeholder interests and assuring to public that bank cares for social and sustainability aspects.

The proportion of non-executive board members (*Nonex*) is not a significant determinant of any of the disclosure indicators covered in M1, therefore leading to inconclusive results with respect to H3a. Results on this issue in previous studies on banks have remained contradictory with some reporting positive (e.g., Barako and Brown, 2008; García-Meca et al., 2018; Khan, 2010; Lattemann et al., 2009; Sharif and Rashid, 2014) or no association (e.g., Hossain and Reaz, 2007). In terms of non-financial firms, results have suggested positive (e.g., Esa and Zahari, 2016; Fuente et al., 2017; Gulzar et al., 2019; Khan et al., 2013), negative (e.g., Bansal et al., 2018; Sundarasen et al., 2016) or inconclusive (e.g., Dias et al., 2017; Frías-Aceituno et al., 2013; Michelon and Parbonetti, 2012). However, after country-specific mandatory quotas for non-executive board members are considered (*rNonex*) in M2, negative association appears with CSR disclosure. This association remains for the case when the report is in line with GRI Standards (*dGRI*) but again disappears for externally verified CSR report (*dAUD*). This result suggests that even if there are more non-executive board members than required, they tend to avoid the disclosure of CSR information. This result is therefore contrary to H3b. There can be several explanations why negative association appears. First, if the shareholders are financial institutions with short-term interests in the company, the selected non-executive board members are hired purely for their financial expertise, or they tend to prioritize historically available financial information instead of CSR information (Arora and Dharwadkar, 2011; Baysinger and Hoskisson, 1990). Second explanation may come from their individual preferences and reputational aspect. As non-executive board members may be led by their concerns for career and reputation, they might avoid risky behaviour that could affect these negatively (Holmström, 1999). Since CSR information is obtained from management, there is a risk of receiving manipulative or misleading information (Kravet and Muslu, 2013). Therefore, non-executive board members might avoid that risk by avoiding disclosing CSR information and standardized reports to public.

In terms of female representation, the percentage women on boards (*Wom*) exhibits strong positive association with the odds of CSR disclosure in M1. This is in line with H4a and the results in Barako and Brown (2008), García-Meca et al. (2018) and Kiliç et al. (2015) as well as disclosure studies concentrating on non-financial firms (e.g., Frías-Aceituno et al., 2013; Fuente et al., 2017; Gulzar et al., 2019). In terms of the quality of the CSR report, results are more mixed with regards to H4a. Statistically significant positive association remains if report is externally verified (dependent variable is *dAUD*) but disappears when the report follows GRI Standards (dependent variable is

dGRI). After female representation indicator is controlled for country-specific requirements (*rWom*) in M2 specifications, association remains only for CSR disclosure (dependent variable is *dCSR*) but is less significant (partial support for H4b). This could reflect that if the percentage of women on banks' boards exceeds country-specific quotas then the odds of CSR disclosure are higher. However, closer look into this issue is required since the role of women on CSR might be affected by other aspects not controlled for in this study. For example, specific country's cultural context; whether the level of women is higher, lower or equal to the mandatory quota; and so forth.

From bank-specific financial variables, statistically significant and positive association with bank size (*size*) is detected in all specifications of models M1 and M2. As expected, this suggests that larger listed banks are more likely to be concerned with social and sustainability issues. They are exposed to wider public and therefore, need to put additional effort into gaining legitimacy. Those results also coincide with those of previous literature (e.g., García-Meca et al., 2018; Hamid, 2004; Hossain and Reaz, 2007; Khan, 2010; Sharif and Rashid, 2014). In terms of bank performance indicators, significantly negative association with profitability (*roa*) is detected in all model specifications similarly to El-Bannany (2007) and García-Meca et al. (2018). On the other hand, this might suggest that more profitable banks do not disclose CSR reports due to lack of motivation. On the other hand, less profitable banks may disclose CSR reports to gain legitimacy and improve their reputation to ensure long-term success, which refers to impression management. However, results are contradictory with respect to equity to total assets (*e/ta*). Significant positive association is detected in all model specifications, except for M2 when dependent variable is *dAUD*. This result would indicate that less leveraged banks are more likely to engage in CSR activities. Considering that larger percentage of bank assets are owned by the shareholders, it would suggest that the pressure to respond to interests of different shareholders, and therefore disclose sustainability information, is also higher.

4.3. Robustness tests and complementary results

In this section, the robustness of the results is analysed with two different approaches. Firstly, a simple approach is used with changing the bank-specific performance indicator in equation 1 from *roa* and *e/ta* to combined performance indicator (*pc*) in Table 5. Second approach is based on the fact that similarly to governance indicators, CSR disclosure is also affected by country-level regulations. Therefore, the models M1 and M2 are applied to CSR disclosure requirements in a specific country. This is done by conducting a set of regressions by setting the dependent variable in equation 1 to country-level regulation-corrected dummy *rCSR*. This approach enables to investigate voluntary CSR reporting and respective results are presented in Table 6.

After changing the performance indicator, M2 results in Table 5 confirm that there is no association between CSR reporting and exceeding the required minimum quota for board size (*rBsize*). Voluntary separation of the roles of CEO and board's chairman (*rCEOch*) becomes even stronger determinant of disclosing an audited CSR report, providing support for H2b. The proportion of non-executive board members exceeding the required quota (*rNonex*) loses its significant association with disclosing a CSR report in line with GRI Standards (dependent variable is *dGRI*). However, the association becomes significantly positive for disclosing an externally verified report

(dependent variable is *dAUD*). This suggests mixed results with regards to H3b. Similar change occurs with alternative female representation variable (*rWom*), providing partial support for H4b. The percentage of women that exceeds the required mandatory level of the country is not a significant determinant of CSR disclosure (dependent variable is *dCSR*) anymore. However, significantly positive association appears for disclosing an audited report (dependent variable is *dAUD*). Bank size still continues to exhibit significantly positive association in all model specifications. However, the combined performance indicator (*pc*) is insignificant in all specifications.

Table 5. Robustness of estimates with combined performance indicator.

Dependent variable	*dCSR*		*dCSR*		*dGRI*		*dAUD*	
Model	M1b		M2b		M2b		M2b	
l.Bsize	0.822	***						
	(0.041)							
l.CEOch	0.563							
	(0.207)							
l.Nonex	1.006							
	(0.017)							
l.Wom	1.074	***						
	(0.019)							
rBsize			0.997		0.997		0.999	
			(0.002)		(0.003)		(0.004)	
rCEOch			3.185	**	0.810		37.730	***
			(1.628)		(0.408)		(42.770)	
rNonex			0.973	*	0.987		1.037	*
			(0.014)		(0.015)		(0.022)	
rWom			1.034		1.006		1.058	**
			(0.022)		(0.018)		(0.027)	
l.size	1030.8	***	536.3	***	338.0	***	1356.3	***
	(708.3)		(468.8)		(271.1)		(1558.9)	
l.pc	1.505		1.430		1.129		1.012	
	(0.458)		(0.412)		(0.267)		(0.321)	
No. of obs.	879		398		408		283	
Pseudo R2	0.47		0.40		0.32		0.50	
Chi2	316.1	***	126.6	***	107.1	***	129.7	***

Notes: For variable descriptions, see Table 1. Dependent variable is one of the baseline CSR disclosure dummies (*dCSR*, *dGRI* or *dAUD*). All explanatory variables except country-level regulation corrected variables (*rCEOch*, *rBsize*, *rNonex*, *rWom*) are lagged by one year. Table presents odds ratios. Standard errors in parentheses. *, **, *** denote significance at 10%, 5%, 1% levels.

Complementary results in Table 6 show that after adjusting CSR disclosure indicator (*dCSR*) with respective country-level CSR regulations (dependent variable is *rCSR*), leads to substantial changes. The size of the board (*Bsize*) loses its significance in models M1a and M1b, where all baseline indicators are included. Surprisingly, all other baseline governance indicators become

significant or change the direction of their association with CSR disclosure. Contrary to expectations and H2a, the presence of CEO duality (*CEOch*) becomes to increase the odds of voluntary CSR disclosure. At the same time, the proportion of non-executive board members (*Nonex*) and women (*Wom*) start to indicate to negative association (contrary to H3a and H4a respectively). This controversy is interesting and could suggest that previously detected associations may be affected by regulatory requirements.

Table 6. Logistic regression results of voluntary CSR disclosure.

Dependent variable	*rCSR*		*rCSR*		*rCSR*		*rCSR*	
Model	M1a		M1b		M2a		M2b	
l.Bsize	0.989		0.980					
	(0.032)		(0.035)					
l.CEOch	1.727	**	1.770	**				
	(0.449)		(0.509)					
l.Nonex	0.969	***	0.974	**				
	(0.010)		(0.012)					
l.Wom	0.972	**	0.969	***				
	(0.011)		(0.012)					
rBsize					1.001		1.000	
					(0.001)		(0.002)	
rCEOch					1.103		0.786	
					(0.361)		(0.300)	
rNonex					0.959	***	0.964	***
					(0.010)		(0.012)	
rWom					1.014		0.998	
					(0.015)		(0.016)	
l.size	15.0	***	20.5	***	5.1	***	14.5	***
	(5.4)		(8.2)		(2.1)		(7.8)	
l.roa	0.858				0.878			
	(0.082)				(0.122)			
l.e/ta	1.029				0.830	**		
	(0.066)				(0.073)			
l.pc			0.626	**			0.361	***
			(0.136)				(0.103)	
No. of obs.	918		775		596		420	
Pseudo R2	0.12		0.14		0.09		0.15	
Chi2	93.4	***	90.2	***	46.9	***	55.2	***

Notes: For variable descriptions, see Table 1. Dependent variable is country-level regulation-corrected CSR disclosure dummy (*rCSR*). All explanatory variables except country-level regulation corrected variables (*rCEOch*, *rBsize*, *rNonex*, *rWom*) are lagged by one year. Table presents odds ratios. Standard errors in parentheses. *, **, *** denote significance at 10%, 5%, 1% levels.

Country-level governance requirements on the composition of the board of directors are controlled in parallel with CSR disclosure requirements in models M2a and M2b in Table 6. Similarly to the results in Table 4, board size (*rBsize*) remains irrelevant determinant also for voluntary CSR disclosure after controlling for regulatory requirements. This confirms inconclusive results with respect to H1b. Results remain the same with regards to the proportion of non-executive board members exceeding the mandatory level (*rNonex*) that decreases the odds of voluntary CSR disclosure. This confirms that non-executive board members tend to avoid the disclosure of CSR information possibly due to their career concerns. High reliance on management as the source of information seems to increase the risk to receive inaccurate sustainability data. Therefore, this decreases non-executive board members' initiative for voluntary CSR reporting. Thus H3b must be rejected. Surprisingly, this remains the only significant governance indicator for voluntary CSR disclosure. Other regulation-adjusted governance indicators lose their significance. Voluntary separation of the roles of the bank's CEO and chairman of the board (*rCEOch*) does not contribute to disclosing CSR report voluntarily (inconclusive results with regards to H2b). As board's chairman is responsible for board's activity, this could suggest that the chairman does strive for fulfilling current regulations but do not put any additional effort into increasing bank's sustainability reporting behaviour. Though much more unexpected change occurs with regulation-adjusted female representation variable (*rWom*) that also loses its significance in models M2a and M2b, providing inconclusive results with regards to H4b. As the association was significantly positive in Table 4, it suggests that board's gender diversity's association with voluntary CSR disclosure might be affected by the fact whether the proportion of women on board is above, below or equal to mandatory quota. Thus, future studies should approach board's gender diversity's role on CSR reporting more deeply. From financial variables, bank size (*size*) remains positively associated with voluntary CSR reporting. Results with regards to performance indicators are more mixed. Combined performance indicator (*pc*) refers to negative association

This controversy is interesting and suggests that regulatory requirements can change the so far predominant conclusions about CSR disclosure determinants. The associations between different governance indicators and CSR disclosure are sensitive to regulation related corrections. However, the multi-country sample in this study can reconcile mixed results and sensitivity to regulations, as it covers countries of which some have introduced mandatory regulations on the composition of the board of directors and/or CSR reporting, while other have not. If the study focuses only on the data from one country, the potential impact arising from regulatory limits cannot be controlled for. Therefore, the results indicate that the determinants of banks' CSR reporting and voluntary CSR reporting are different. This implies that country-level mandatory regulations should be considered as an important element in future studies of CSR disclosure.

5. Conclusion

The objective of this paper was to determine the association between the composition of the board of directors and CSR reporting of listed banks. Special attention was paid to controlling for the impact of mandatory board composition and CSR reporting requirements.

The results demonstrate significant differences in the associations between board composition and CSR reporting before and after correcting for regulative requirements. The results firstly show that larger board decreases and the presence of women on boards increases the likelihood of banks' CSR disclosure. After controlling for country-level governance regulations on board composition, board size becomes irrelevant. The absence of CEO duality and inclusion of women on boards contribute to banks' CSR disclosure, only if these are done on a voluntary basis. Interestingly, voluntary separation of the roles of the CEO and chairman of the board is the only determinant increasing disclosure quality in terms of having externally verified report. The presence of non-executive board members decreases the disclosure of CSR information even if they are named to boards voluntarily. This association appears also for the disclosure of compiling the report based of GRI Standards but is less robust.

Controlling for country-level governance regulations on board composition together with CSR requirements leads to the irrelevance of most governance indicators. Only the result regarding non-executive board members remains the same for voluntary CSR disclosure. This indicates that non-executive board members may avoid the disclosure of CSR information possibly due to their career concerns. Therefore, enhancing board heterogeneity voluntarily becomes mostly irrelevant for promoting banks' voluntary commitment to sustainability reporting. All in all, the findings show that determinants of CSR reporting and voluntary CSR reporting are different. This implies that country-level mandatory regulations should be considered as an important element in future studies of CSR disclosure.

This study does have some limitations. Since the used methodology does not enable to detect causation, this aspect deserves attention in future studies focusing on CSR disclosures of banks. Further, contradictory results regarding female representation might be affected by the fact whether the proportion of women on boards is above, below or equal to mandatory quota. Thus, future studies should approach board's gender diversity's role on CSR reporting more deeply.

This study provides several practical implications. Mandatory governance regulations force banks to change the composition of the board of directors and increase its diversity, which should promote their commitment to CSR activities. However, the results show that the voluntary commitment to CSR of banks increasing their board diversity voluntarily is not substantially different from banks that are subject to board composition requirements.

Acknowledgements

This work was supported by Tallinn University of Technology under grant B57 "Efficiency in Financial Sector in Light of Changing Regulatory Environment" and by the Doctoral School in Economics and Innovation, supported by the European Union, European Regional Development Fund (Tallinn University of Technology ASTRA project "TTÜ Development Program 2016–2022", project code: 2014–2020.4.01.16–0032). This paper represents the work conducted in connection with these grants. The funding providers had no role in the research process from study design to submission.

Conflict of interest

The author declares no conflict of interest.

References

Adams RB, Almeida H, Ferreira D (2005) Powerful CEOs and their impact on corporate performance. *Rev Financ Stud* 18: 1403–1432.

Adams RB, Mehran H (2003) Is corporate governance different for bank holding companies? *Econ Policy Rev* 9: 123–142.

Alexander K (2006) Corporate governance and banks: The role of regulation in reducing the principal-agent problem. *J Bank Regul* 7: 17–40.

Appelbaum SH, Audet L, Miller JC (2003) Gender and leadership? Leadership and gender? A journey through the landscape of theories. *Leadership Org Dev J* 24: 43–51.

Arora P, Dharwadkar R (2011) Corporate governance and corporate social responsibility (CSR): The moderating roles of attainment discrepancy and organization slack. *Corp Gov* 19: 136–152.

Bansal S, Lopez-Perez M, Rodriguez-Ariza L (2018) Board independence and corporate social responsibility disclosure: The mediating role of the presence of family ownership. *Adm Sci* 8: 1–21.

Barako DG, Brown AM (2008) Corporate social reporting and board representation: evidence from the Kenyan banking sector. *J Manage Gov* 12: 309–324.

Basel Committee on Banking Supervision (2012) *Core Principles for Effective Banking Supervision. Basel: Bank for International Settlements*, Basel: Bank for International Settlements.

Baysinger B, Hoskisson RE (1990) The composition of boards of directors and strategic control: Effects on corporate strategy. *Acad Manage Rev* 15: 72–87.

Bear S, Rahman N, Post C (2010) The impact of board diversity and gender composition on corporate social responsibility and firm reputation. *J Bus Ethics* 97: 207–221.

Betz M, O'Connel L, Shepard JM (1989) Gender differences in proclivity for unethical behavior. *J Bus Ethics* 8: 321–324.

Birindelli G, Dell'Atti S, Iannuzzi A, et al. (2018) Composition and activity of the board of directors: Impact on ESG performance in the banking system. *Sustainability-Basel* 10: 4699.

Boyacioglu MA, Kara Y, Baykan ÖK (2009) Predicting bank financial failures using neural networks, support vector machines and multivariate statistical methods: A comparative analysis in the sample of Savings Deposit Insurance Fund (SDIF) transferred banks in Turkey. *Expert Syst Appl* 36: 3355–3366.

Cabeza-García L, Fernández-Gago R, Nieto M (2018) Do board gender diversity and director Typology impact CSR reporting?. *Eur Manag Rev* 15: 559–575.

Chakroun R, Matoussi H, Mbirki S (2017) Determinants of CSR disclosure of Tunisian listed banks: a multi-support analysis. *Soc Respons J* 13: 552–584.

Chau GK, Gray SJ (2002) Ownership structure and corporate voluntary disclosure in Hong Kong and Singapore. *Int J Account* 37: 247–265.

Cucari N, Esposito De Falco S, Orlando B (2018) Diversity of board of directors and environmental social governance: Evidence from Italian listed companies. *Corp Soc Resp Env Ma* 25: 250–266.

De Haan J, Vlahu R (2016) Corporate governance of banks: A survey. *J Econ Surv* 30: 228–277.

Deegan C (2002) The legitimising effect of social and environmental disclosures—a theoretical foundation. *Account Audit Accoun* 15: 282–311.

DeYoung R, Peng EY, Yan M (2013) Executive compensation and business policy choices at US commercial banks. *J Financ Quant Anal* 48: 165–196.

Dhaliwal DS, Li OZ, Tsang A, et al. (2011) Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *Account Rev* 86: 59–100.

Dias A, Rodrigues LL, Craig R (2017) Corporate governance effects on social responsibility disclosures. *Aust Account Bus Financ J* 11: 3–22.

Dienes D, Velte P (2016) The impact of supervisory board composition on CSR reporting. Evidence from the German two-tier system. *Sustainability* 8: 1–20.

Eagly AH, Johnson BT (1990) Gender and leadership style: A meta-analysis. *Psychol Bull* 108: 233–256.

Eisenberg T, Sundgren S, Wells M (1998) Larger board size and decreasing firm value in small firms. *J Financ Econ* 48: 35–54.

El-Bannany M (2007) A study of determinants of social disclosure level in UK banks. *Corp Ownersh Control* 5: 120–130.

Esa E, Zahari AR (2016) Corporate social responsibility: Ownership structures, board characteristics & the mediating role of board compensation. *Proc Econ Financ* 35: 35–43.

Fama EF, Jensen MC (1983) Separation of ownership and control. *J Law Econ* 26: 301–325.

Flannery MJ (1998) Using market information in prudential bank supervision: A review of the US empirical evidence. *J Money Credit Bank* 30: 273–305.

Forbes DP, Milliken FJ (1999) Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Acad Manage Rev* 24: 489–505.

Ford RC, Richardson WD (1994) Ethical decision making: A review of the empirical literature. *J Bus Ethics* 13: 205–221.

Freeman RE (1984) *Strategic management: A stakeholder approach*, Boston: Pitman.

Frías-Aceituno JV, Rodriguez-Ariza L, Garcia-Sanchez IM (2013) The role of the board in the dissemination of integrated corporate social reporting. *Corp Soc Resp Env Ma* 20: 219–233.

Fuente JA, García-Sanchez IM, Lozano MB (2017) The role of the board of directors in the adoption of GRI guidelines for the disclosure of CSR information. *J Clean Prod* 141: 737–750.

Gamerschlag R, Möller K, Verbeeten F (2011) Determinants of voluntary CSR disclosure: Empirical evidence from Germany. *Rev Manag Sci* 5: 233–262.

García-Meca E, Uribe-Bohórquez MV, Cuadrado-Ballesteros B (2018) Culture, board composition and corporate social reporting in the banking sector. *Admin Sci* 8: 41.

García-Sánchez IM, Martínez-Ferrero J, García-Meca E (2018) Board of directors and CSR in banking: the moderating role of bank regulation and investor protection strength. *Aust Account Rev* 28: 428–445.

García-Sánchez IM, Rodríguez-Domínguez L, Gallego-Álvarez I (2011) Corporate governance and strategic information on the Internet. *Account Audit Accoun* 24: 471–501.

Giannarakis G (2014) The determinants influencing the extent of CSR disclosure. *Int J Law Manag* 56: 393–416.

Gillette AB, Noe TH, Rebello MJ (2003) Corporate board composition, protocols, and voting behavior: Experimental evidence. *J Finance* 58: 1997–2031.

Global Reporting Initiative (2013) *The external assurance of sustainability reporting*, Amsterdam: Global Reporting Initiative.

Gray R (2010) Is accounting for sustainability actually accounting for sustainability… and how would we know? An exploration of narratives of organisations and the planet. *Account Org Soc* 35: 47–62.

Gray RH, Owen DL, Adams C (1996) *Accounting and accountability: changes and challenges in corporate social and environmental reporting*, Hemel Hempstead: Prentice Hall.

Gulzar MA, Cherian J, Hwang J, et al. (2019) The impact of board gender diversity and foreign institutional investors on the corporate social responsibility (CSR) engagement of Chinese listed companies. *Sustainability-Basel* 11: 307.

Hall J (1971) Decisions, Decisions, Decisions. *Psychol Today* 5: 51–54.

Hamid FZA (2004) Corporate social disclosure by banks and finance companies: Malaysian evidence. *Corp Ownersh Control* 1: 118–130.

Harris M, Raviv A (2006) A theory of board control and size. *Rev Financ Stud* 21: 1797–1832.

Holmström B (1999) Managerial incentive problems: A dynamic perspective. *Rev Econ Stud* 66: 169–182.

Hossain M, Reaz M (2007) The determinants and characteristics of voluntary disclosure by Indian banking companies. *Corp Soc Resp Env Ma* 14: 274–288.

Jackson G, Apostolakou A (2010) Corporate social responsibility in Western Europe: an institutional mirror or substitute?. *J Bus Ethics* 94: 371–394.

Javidan M, Bullough A, Dibble R (2016) Mind the gap: Gender differences in global leadership self-efficacies. *Acad Manage Perspect* 30: 59–73.

Jensen MC (1993) The modern industrial revolution, exit and the failure of internal control systems. *J Finance* 48: 831–880.

Jensen MC, Meckling WH (1976) Theory of the firm: Managerial behavior, agency costs and ownership structure. *J Financ Econ* 3: 305–360.

Jizi MI, Salama A, Dixon R, et al. (2014) Corporate governance and corporate social responsibility disclosure: Evidence from the US banking sector. *J Bus Ethics* 125: 601–615.

John K, De Masi S, Paci A (2016) Corporate governance in banks. *Corp Gov* 24: 303–321.

John K, Mehran H, Qian Y (2010) Outside monitoring and CEO compensation in the banking industry. *J Corp Financ* 16: 383–399.

Khan A, Muttakin MB, Siddiqui J (2013) Corporate governance and corporate social responsibility disclosures: Evidence from an emerging economy. *J Bus Ethics* 114: 207–223.

Khan HUZ (2010) The effect of corporate governance elements on corporate social responsibility (CSR) reporting: Empirical evidence from private commercial banks of Bangladesh. *Int J Law Manag* 52: 82–109.

Kiliç M, Kuzey C, Ali U (2015) The impact of ownership and board structure on corporate social responsibility (CSR) reporting in the Turkish banking industry. *Corp Gov Int J Bus Soc* 15: 357–374.

Kirkpatrick G (2009) The corporate governance lessons from the financial crisis. *OECD J: Financ Mark Trends* 1: 61–87.

Kravet T, Muslu V (2013) Textual risk disclosures and investors' risk perceptions. *Rev Acc Stud* 18: 1088–1122.

Laeven L (2013) Corporate governance: what's special about banks?. *Annu Rev Financ Econ* 5: 63–92.

Laidroo L (2016) Reliability of graphs disclosed in annual reports of Central and Eastern European banks. *Eastern Eur Econ* 54: 319–350.

Lattemann C, Fetscherin M, Alon I, et al. (2009) CSR communication intensity in Chinese and Indian multinational companies. *Corp Gov* 17: 426–442.

Laugel J, Laszlo C (2009) Financial crisis: The opportunity for sustainable value creation in banking and insurance. *J Corp Citi* 35: 24–38.

Legendre S, Coderre F (2013) Determinants of GRI G3 application levels: The case of the Fortune Global 500. *Corp Soc Resp Env Ma* 20: 182–192.

Macey JR, O'Hara M (2003) The corporate governance of banks. *Econ Policy Rev* 9: 91–107.

Menassa E, Brodhäcker M (2017) The type and quantity of corporate social disclosures of German 'Universal' banks. *J Manage Gov* 21: 119–143.

Michelon G, Parbonetti A (2012) The effect of corporate governance on sustainability disclosure. *J Manage Gov* 16: 477–509.

O'Dwyer B (2002) Managerial perceptions of corporate social disclosure: An Irish stories. *Account Audit Accoun* 15: 406–436.

OECD (1999) *OECD principles of corporate governance*, Paris: OECD Publications Service.

Pearce JA, Zahra SA (1992) Board composition from a strategic contingency perspective. *J Manage Stud* 29: 411–438.

Petkoski D, Twose N (2003) Public policy for corporate social responsibility. *WBI Series on Corporate Responsibility*, 7–25.

Pfeffer J, Salancik GR (1978) *The external control of organizations: A resource dependence perspective*, Palo Alto, CA : Stanford University Press.

Prado-Lorenzo JM, Gallego-Alvarez I, García-Sanchez IM (2009) Stakeholder engagement and corporate social responsibility reporting: the ownership structure effect. *Corp Soc Resp Env Ma* 16: 94–107.

Prado-Lorenzo JM, García-Sánchez IM (2010) The role of the Board of Directors in disseminating relevant information on greenhouse gases. *J Bus Ethics* 97: 391–424.

Rechner PL, Dalton DR (1991) CEO duality and organizational performance: A longitudinal analysis. *Strateg Manage J* 12: 155–160.

Roberts RW (1992) Determinants of corporate social responsibility disclosure: an application of stakeholder theory. *Account Org Soc* 17: 595–612.

Roman A, Şargu AC (2013) Analysing the financial soundness of the commercial banks in Romania: An approach based on the CAMELS framework. *Proc Econ Financ* 6: 703–712.

Saeidi SP, Sofian S, Saeidi P, et al. (2015) How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. *J Bus Res* 68: 341–350.

Sharif M, Rashid K (2014) Corporate governance and corporate social responsibility (CSR) reporting: And empirical evidence from commercial banks (CB) of Pakistan. *Qual Quant* 48: 2051–521.

Siciliano JI (1996) The relationship of board member diversity and organizational performance. *J Bus Ethics* 15: 1313–1320.

Sierra L, Zorio A, García-Benau MA (2013) Sustainable development and assurance of corporate social responsibility reports published by Ibex-35 companies. *Corp Soc Resp Env Ma* 20: 359–370.

Sierra-García L, Zorio-Grima A, García-Benau MA (2015) Stakeholder engagement, corporate social responsibility and integrated reporting: An exploratory study. *Corp Soc Resp Env Ma* 22: 286–304.

Srivastav A, Hagendorff J (2016) Corporate governance and bank risk-taking. *Corp Gov* 24: 334–345.

Suchman MC (1995) Managing legitimacy: Strategic and institutional approaches. *Acad Manage Rev* 20: 571–606.

Sun WC, Huang HW, Dao M, et al. (2017) Auditor selection and corporate social responsibility. *J Bus Finan Account* 44: 1241–1275.

Sundarasen SD, Je-Yen T, Rajangam N (2016) Board composition and corporate social responsibility in an emerging market. *Corp Gov Int J Bus Soc* 16: 35–53.

Viganò F, Nicolai D (2009) CSR in the European banking sector: evidence from a survey, In: Barth, R., Wolff, F. Eds., *Corporate Social Responsibility in Europe: Rhetoric and Realities*, Cheltenham, UK : Edward Elgar Publishing Inc, 95–108.

Zhuang Y, Chang X, Lee Y (2018) Board composition and corporate social responsibility performance: Evidence from Chinese public firms. *Sustainability-Basel* 10: 2752.

AIMS Press

Appendix 2. Publication II

BANKS' CSR REPORTING – DO WOMEN HAVE A SAY?

Publication II

Tapver, T., Laidroo, L. and Gurvitš-Suits, N.A. (2020). Banks' CSR reporting – Do women have a say? *Corporate Governance*: *The International Journal of Business in Society*, Vol. 20, No. 4, 639-651. DOI: https://doi.org/10.1108/CG-11-2019-0338 (ETIS 1.1)

Banks' CSR reporting – Do women have a say?

Triinu Tapver, Laivi Laidroo and Natalie Aleksandra Gurvitš-Suits

Abstract

Purpose – *This paper aims to determine the association between corporate social responsibility (CSR) reporting of listed banks and female representation on boards while controlling for the impact of gender quotas.*

Design/methodology/approach – *Logistic regressions are used with bank fixed effects on a global sample of 285 commercial banks from 2005 to 2017.*

Findings – *There exists a positive association between the proportion of women on board and banks' CSR disclosure. Positive association remains also after quota corrections for banks with either below- or above-quota female representation. Further, adding more women to boards than required by quota could affect boards' CSR reporting in masculine countries but not in feminine countries.*

Research limitations/implications – *The results are not generalizable to smaller listed banks and the used estimation approach does not enable to detect causality.*

Practical implications – *Policymakers interested in improving banks' CSR reporting could introduce gender quotas.*

Social implications – *Gender quotas can enforce banks' sustainable behaviour.*

Originality/value – *First, it is the first study to thoroughly control for gender quotas while investigating the association between female representation on boards and CSR disclosure. Second, this paper moves forward from the so-far predominant concentration on single-country studies on banks' CSR reporting. Third, this paper covers the aspect of a country's masculinity-femininity as a factor that could influence the association between CSR disclosure and female representation.*

Keywords *CSR reporting, Board composition, Gender diversity, Gender quotas*

Paper type *Research paper*

Triinu Tapver, Laivi Laidroo and Natalie Aleksandra Gurvitš-Suits are all based at the TalTech School of Business and Governance, Tallinn University of Technology, Tallinn, Estonia.

JEL classification – G21, G34, M4, M14

Received 5 November 2019
Revised 21 January 2020
26 March 2020
Accepted 29 March 2020

We appreciate the insightful comments received from the members of the finance research group at TalTech School of Business and Governance. Special thanks go to Pavlo Illiashenko and Karsten Staehr for their constructive feedback.

Funding: This work was supported by Tallinn University of Technology under Grant B57 "Efficiency in Financial Sector in Light of Changing Regulatory Environment" and by the Doctoral School in Economics and Innovation, supported by the European Union, European Regional Development Fund (Tallinn University of Technology ASTRA project "TTÜ Development Program 2016-2022", project code: 2014-2020.4.01.16-0032). This paper represents the work conducted in connection with these grants. The funding providers had no role in the research process from study design to submission.

1. Introduction

The role of women on boards is a contemporary ethical issue for most companies (Terjesen and Sealy, 2016). Previous studies have shown that the presence of women on boards improves the board's internal regularity, favours board strategic control and mitigates conflicts (Benkraiem *et al.*, 2017; Huse and Solberg, 2006; Nielsen and Huse, 2010). It is also often associated with improved corporate social responsibility (CSR) disclosure and CSR performance of companies (Harjoto and Rossi, 2019; Khan *et al.*, 2019; Kilic *et al.*, 2015; Kyaw *et al.*, 2017). In light of these benefits, several countries such as Norway, Finland, Iceland and Belgium have introduced gender quotas starting from 2003 (Section 2). However, recent empirical evidence indicates that the introduction of quotas has not always led to the desired outcome (Ahern and Dittmar, 2012; Matsa and Miller, 2013; Terjesen and Sealy, 2016). This can be related to the legitimacy and credibility issues surrounding the appointment of new female board members for meeting the quota, as well as tokenism (Fitzsimmons, 2012; Terjesen*et al.*, 2015). Surprisingly, previous research has tended to overlook the impact of gender quotas on the association between female representation on boards and corporate CSR outcomes (Barako and Brown, 2008; Hossain and Reaz, 2007; Jizi *et al.*, 2014; Khan, 2010). Understanding the

latter aspect is important for corporate governance standard setters when trying to enforce sustainable behaviour of companies through the introduction of gender quotas. This paper attempts to fill this gap by focusing on the association between female representation on boards and CSR reporting of listed banks while controlling for the impact of gender quotas.

Companies can use CSR reporting to improve stakeholders' awareness of the firm's CSR activities and to demonstrate their commitment to CSR, despite the vulnerability of such reporting to window-dressing (Clatworthy and Jones, 2001). CSR reporting of banks deserves special attention due to the following reasons. First, compared to other businesses, banks affect directly or indirectly a wider variety of interest groups including firms, employees, customers, suppliers and citizens (John *et al.*, 2016). Second, the 2008 global financial crisis increased the pressure for banks to integrate CSR in their core business (Fassin and Gosselin, 2011; Laidroo and Sokolova, 2015; Laidroo and Öobik, 2013; Laugel and Laszlo, 2009). Third, corporate governance mechanisms can influence CSR disclosure. This is of greater importance in financial institutions that are exposed to bank regulation, opacity, the complexity of activities, conflicts of interest between shareholders and debtholders, higher levels of moral hazard and agency costs (John *et al.*, 2016; Laeven, 2013). Fourth, previous single-country studies on the association between female representation on board and banks' CSR disclosure have only covered countries with no gender quotas (Barako and Brown, 2008; Hossain and Reaz, 2007; Jizi *et al.*, 2014; Khan, 2010). The most relevant cross-country studies to date on banks' CSR disclosure determinants by Hu and Scholtens (2014) and García-Meca *et al.* (2018) have entirely overlooked the female representation aspect. This indicates that surprisingly little is known about female representation as banks' CSR disclosure determinant, on a global scale, among major commercial banks, and covering countries with gender quotas. The focus on gender quotas would enable to understand whether quotas enforce positive association between female representation on boards and banks' CSR reporting.

To address this gap, a sample of 285 commercial banks with total assets above 25bn euros and domiciled in 35 different countries over a period of 2005-2017 is used. Logistic regressions with bank fixed effects reveal that, in line with previous studies, a positive association is observed between the proportion of women on board and banks' CSR disclosure. Positive association remains also after quota-corrections for banks with either below- or above-quota female representation. Further, adding more women to boards than required by quota could affect boards' CSR reporting in masculine countries and not in feminine countries. These results indicate that the introduction of a gender quota system can improve CSR reporting.

This paper contributes to the CSR disclosure literature of both financial and non-financial firms (Dias *et al.*, 2017; Jizi *et al.*, 2014), by being the first (to the best knowledge of the authors) to thoroughly control for gender quotas while investigating the association between female representation on boards and CSR disclosure. It also contributes to the CSR literature of financial firms, by focusing on a representative sample of listed banks from 35 countries from both the developed and developing world and moving forward from the so-far predominant concentration on single-country studies (Barako and Brown, 2008; Hossain and Reaz, 2007; Jizi *et al.*, 2014; Khan, 2010). This enables to provide generalizable results for major listed banks with the greatest global economic and social impact. This paper also covers the aspect of a country's masculinity-femininity as a factor that could influence the association between CSR disclosure and female representation, which is overlooked in previous CSR reporting literature.

This paper is divided as follows. Section 2 provides an overview of the theoretical and empirical background on the role of women in CSR disclosure. Data and methodology are discussed in Section 3, and the results and discussion in Section 4. Finally, Section 5 concludes.

2. Corporate social responsibility disclosure and women on boards

Women tend to apply the roles of wife and mother in a professional environment. In particular, they contribute to greater orientation towards transparency, visibility, ethical issues and corporate philanthropy (Betz *et al.*, 1989; Lin *et al.*, 2018). Hence, their presence on board increases its diversity and creates broader discussion (Carter *et al.*, 2003). From the perspective of the stakeholder theory, greater board diversity increases company's focus on stakeholder concerns (Freeman, 1984). In terms of the agency theory, diversity improves board's monitoring ability (Jensen and Meckling, 1976). A more diverse board is also likely to be more focused on legitimacy and, therefore, more eager to carry out social practices and engage in CSR reporting (O'Dwyer, 2002). In line with these expectations, the following hypothesis is proposed:

H1. The greater the proportion of women on the board, the greater the probability of CSR disclosure.

Only a few papers on banks have tested this hypothesis, reporting either positive (Barako and Brown, 2008; Kilic *et al.*, 2015; Tapver, 2019) or inconclusive results (Khan, 2010).

The level of legal enforcement of female representation on boards varies across countries. Our hand-collected data set shows that the most common approach, especially in Europe, has been the tendency to establish gender quotas the fulfilment of which is mandatory[1]. For example, Norway was the first country in the world to establish a 40% gender quota in corporate boards in 2003, and it was to be reached by 2006 by state-owned enterprises and by 2008 by others. The quotas were set to 40% in Finland in 2005, 40% in Spain in 2007, 40% in Iceland in 2010, 33% in Belgium in 2011, 33% in Italy in 2011, 40% in France in 2011, 30% in The Netherlands in 2011, and 30% in Germany in 2016. Outside of Europe, gender quotas have been set also at 50% in Canada in 2006, 50% in Israel in 2007, 33% in Kenya in 2010, and 1 woman in India in 2013. These quotas have usually been restricted either to only listed or state-owned enterprises.

Some countries have implemented soft regulations, most commonly in the form of codes of good corporate governance that include recommendations for board gender diversity. For example, in Australia, Austria, Czech Republic, Nigeria, Singapore, Sweden, UK and in the USA, the recommendations regarding gender equality are written in the code, but their fulfilment is not mandatory. In Sweden, the proposed 40% gender quota was not officially approved; however, companies still strive for gender balance on the board. This paper addresses only quotas the fulfilment of which is mandatory.

As gender quotas influence female representation on boards, it is crucial to take this into account when focusing on the role of women on boards. Quotas may lead to the appointment of women mainly because of their gender. For example, the introduction of gender quotas in Norway led to the appointment of younger women with lower managerial experience compared to their male counterparts and was associated with a lower operating performance of the firms (Ahern and Dittmar, 2012; Matsa and Miller, 2013). This indicates that although gender quotas lead to an increase in board diversity, the decision-making of the board may not improve. The forced appointment of women could increase conflict within the board because of diverse perspectives (Fitzsimmons, 2012). The lower credibility of women appointed because of the quota could also reduce their influence in the decision-making of the board (Terjesen *et al.*, 2015; Westphal and Milton, 2000). The boards with female representation below the quota or very close to quota requirements could also be more vulnerable to tokenism (Fitzsimmons, 2012). Once the "critical mass" of women on board is achieved, the gender benefits of their presence would begin to prevail over the tokenism effects (Terjesen and Sealy, 2016). This indicates that if gender quotas exist, the benefits of female representation should be more evident for boards where the proportion of women on board exceeds the quota.

Organizations wishing to gain greater legitimacy in the quota environment would have more women on board than required by the quota (or any at all, if there is no quota) to differentiate themselves. As legitimization can occur also through CSR disclosure (Deegan, 2002), firms with above-quota female representation would be more likely to engage in CSR disclosure. A similar result would emerge if the stakeholder perspective is taken (Freeman, 1984). Firms with above-quota female representation would be more likely to consider company's social responsibilities in terms of specific stakeholders and adopt greater disclosure in these areas. In firms where the proportion of women on board is equal or below the quota, the disclosure would remain less affected. Hence, the following hypothesis is tested:

H2. The more the proportion of women on the board exceeds the quota, the greater the probability of CSR disclosure.

Some signs supporting this expectation have been reported in Tapver (2019).

In addition to gender quotas, female representation on boards can be influenced by cultural traditions and the role of women in the society. Hofstede's framework identifies six dimensions that represent people's values, or more generally, culture in a country. One of these dimensions is masculinity-femininity. Hofstede (2001) explains that masculinity captures the difference between the perceived roles of men and women in society. Social gender roles are clearly distinct in masculine societies as men are supposed to carry material values, be assertive, tough and focused on gaining power. On the opposite, women in masculine societies are modest, tender and attach more emphasis to the quality of life. In masculine societies, the gap between the values of men and women is larger compared to feminine societies. In the latter, social gender roles overlap with both men and women carrying more feminine values and focusing on the quality of life, relationships, co-operation and environment (Hofstede, 2011). Therefore, the gender role of women differs in masculine and feminine countries, which may create some differences in the association between the proportion of women on board and CSR disclosure. In feminine countries, the increase in the proportion of women on the board should reinforce the impact of an already rather feminine outlook of men, leading to a positive association with CSR disclosure. In masculine countries, the same result would apply in case the women on board are empowered and able to enforce their more feminine outlook on CSR issues. As this idea was phrased in *H1*, no separate hypothesis is created.

The situation changes when there are quotas. The quotas have been set mainly in feminine countries. Therefore, it would be more difficult to obtain higher above-quota indicators in those countries. As men in these countries have also more feminine values, the positive association with disclosure could disappear. In masculine countries, companies having more women on board than required by the quota should be considered at the forefront of CSR and a positive association with CSR disclosure would remain. Hence, the following hypotheses are tested:

H3. The more the proportion of women on the board exceeds the quota, the greater the probability of CSR disclosure in masculine countries.

H4. In feminine countries, CSR disclosure is not associated with the proportion of women on boards exceeding the quota.

Several previous studies have employed Hofstede's framework for explaining CSR engagement. Both negative (García-Sánchez *et al*., 2016; Peng *et al*., 2014) and positive (Kim and Kim, 2010) association between the country's masculinity and CSR commitment has been reported. However, none of these papers have simultaneously considered the female representation on boards. García-Meca *et al*. (2018) show that the cultural weakness of a country lowers the positive association between female representation and CSR disclosure. However, they used a combined cultural weakness indicator capturing all Hofstede dimensions simultaneously not just masculinity.

3. Data and methodology

3.1 Sample

The sample covers listed commercial banks from North America, Western Europe, Central and Eastern Europe, Asia and Oceania for which data were available in the Thomson Reuters Eikon database. Commercial banks were targeted because they provide a wide range of financial services and have the greatest impact on the economy. Listed banks were chosen due to their greater stakeholder-orientation and exposure to corporate governance requirements. To constrain the analysis to more international and systemically important banks, the total assets had to be above 25bn euros. A similar approach is used in most of the previous disclosure studies (Hu and Scholtens, 2014; Jizi *et al.*, 2014). The sample covers the years 2005-2017.

The final sample includes data on 285 banks, 83 to 186 banks per year. It covers banks from 35 countries[2], 1 to 27 banks per country per year and on average 5 banks per country per year[3]. The coverage of the sample is 88% of the total assets of the median of all listed commercial banks in each country on each year, and 46% of the number of all listed banks in each country on each year. As the total asset coverage of the sample corresponds to that of the whole population, the sample is representative of the listed banks for selected countries. The main limitation is the selection bias, meaning that the results are not generalizable to smaller listed banks.

3.2 Corporate social responsibility disclosure variable

This paper relies on the CSR disclosure information provided in the Thomson Reuters Eikon database. A binary disclosure variable *dCSR* is used, taking value 1 if the bank discloses a CSR report (defined as stand-alone report or a report contained in a more general annual report). The benefit of such an approach is its objectivity[4]. An alternative would be to use author-constructed CSR indices (Hu and Scholtens, 2014), sentence counts (El-Bannany, 2007; Laidroo and Ööbik, 2013; Menassa and Brodhäcker, 2017) or page counts (Hamid, 2004). However, the construction of such measures is time-consuming and highly subjective. Given the large cross-country sample, the simplified approach was preferred in this paper.

The descriptive statistics of the disclosure variable is presented in Table 1 alongside with bank-specific explanatory governance and financial variables and their expected associations with disclosure indicator.

3.3 Bank-specific explanatory variables

The baseline indicator of female representation is the percentage of women on the bank's board (%*wom*). Based on gender quotas imposed in specific countries for specific types of companies, a quota-adjusted female representation indicator%*wex1* is created. It captures the percentage of women on a specific bank's board exceeding the quota[5]. For example, if the quota is 20% and the bank has the proportion of women at 40%, %*wex1* would be +20% and if the actual is 10%, %*wex1* would be −10%. Three dummy variables are also created depending on whether the percentage of women on the board is higher (*dwhigh*), lower (*dwlow*) or equal (*dweq*) to the quota. A measure based on female workforce participation in the country is also used. It captures the percentage of women on board that exceeds the country's female workforce participation (%*wex2*).

Similar to previous research, three different governance indicators are used as controls: CEO duality (*dCEOch*), board size (*Bsize*) and proportion of non-executive board members (%*nonex*) (Barako and Brown, 2008; García-Meca *et al.*, 2018; Hossain and Reaz, 2007; Jizi *et al.*, 2014; Khan, 2010; Tapver, 2019;Zaman *et al.*, 2018).

Table 1 Descriptive statistics of all variables

Variable	Description	Obs.	Mean	SD	Min	Max	Exp.
Disclosure variables							
dCSR	1 if the bank discloses CSR report, 0 otherwise	1,837	0.60	0.49	0.00	1.00	N/*A*
Governance indicators							
%wom	percentage of women on board (%)	1,768	14.55	12.48	0.00	61.54	+
%wex1	percentage of women on board exceeding mandatory quota (%)	1,768	12.30	12.82	−33.00	61.54	+
dwhigh	1 if the percentage of women on board is higher than the quota, 0 otherwise	1,768	0.71	0.45	0.00	1.00	+
dwlow	1 if the percentage of women on board is lower than the quota, 0 otherwise	1,768	0.04	0.20	0.00	1.00	−
dweq	1 if the percentage of women on board is equal to the quota, 0 otherwise	1,768	0.25	0.43	0.00	1.00	N/*A*
%wex2	percentage of women on board exceeding female workforce participation in the country (%)	1,768	−26.70	13.75	−48.77	40.00	+
dCEOch	1 if bank's CEO acts simultaneously as the chairman of the Board, 0 otherwise	1,843	0.29	0.45	0.00	1.00	−
Bsize	number of Board members	1,797	13.60	4.23	3.00	44.00	+
%nonex	percentage of non-executive Board members (%)	1,775	76.17	23.75	0.00	100.00	+
Financial indicators							
roa1	return assets calculated on the basis of profit before taxes (%)	2,699	0.89	0.95	−4.94	4.97	+/−
e/ta	equity to assets (%)	2,699	6.99	2.93	−3.48	36.40	+/−
pc1	combined performance indicator	2,095	−0.30	0.76	−2.65	3.85	+/−
size	natural log of total bank assets	2,699	18.49	1.22	17.04	21.93	+
liq/ta	liquid assets to total assets (%)	2,692	9.62	7.18	0.00	55.86	N/*A*
l/ta	loans to assets (%)	2,693	60.03	12.45	6.58	97.91	N/*A*
pe/ta	personnel expenses to assets (%)	2,101	0.89	0.43	0.04	3.21	N/*A*

Notes: Exp. refers to the expected association with disclosure indicator: + positive; − negative; N/*A* not applicable

Similar to previous empirical studies (Hu and Scholtens, 2014; Khan, 2010; Orazalin, 2019) bank size (*size*) and performance are controlled for. Three alternative performance indicators are used: return on assets (*roa1*), equity ratio (*e/ta*) or combined performance indicator (*pc1*). The latter variable captures the health of financial institutions and is constructed from CAMEL indicators: capital (*e/ta*), asset quality (*l/ta*), management (*pe/ta*), earnings (*roa1*) and liquidity (*liq/ta*) (Laidroo, 2016; Roman and Şargu, 2013).

3.4 Model specification

CSR disclosure decision (*dCSR*) of bank *i* on year *t* is modelled with the following logistic regression:

$$P(dCSR_{it}=1)=\alpha_i+\beta_1 Wom_{it-1}+\beta_2 dCEOch_{it-1}+\beta_3 Bsize_{it-1}+\beta_4 \%nonex_{it-1}+\beta_5 size_{it-1}+\beta_6 Perf_{it-1}+\varepsilon_{it} \quad (1)$$

Wom refers to different female representation indicators that have strong pairwise correlations. Therefore, *%wom*, *%wex1*, *%wex2* are used in separate estimations, or *dwhigh* used together with *dwlow* to determine whether the odds of CSR disclosure differ in banks with female representation above or below quota from those with female representation equal to the quota. The model also includes three additional governance controls and financial controls mentioned in Section 3.3. *Perf* refers to bank performance indicators (*roa1*, *pc1*, *e/ta*) that are moderately correlated with each other. As the combined performance indicator (*pc1*) is based on both, *roa1* and *e/ta*, *roa1* with *e/ta* is used in the baseline model and *pc1* in alternative specification.

To see whether the associations differ in feminine and masculine countries, equation (1) is estimated on two sub-samples based on the country-specific Hofstede masculinity score (*dmasc*). Masculine countries are the ones with masculinity score above the upper 25% of countries in the Hofstede data and those below are considered feminine countries[6].

Models are estimated using bank-specific fixed effects to control for unobserved heterogeneity across banks and to control for all potential explanatory variables, which remain time-invariant. Explanatory variables are lagged to ensure weak exogeneity. As some of the governance variables used in all models are dummies, the results are reported using odds ratios. The main limitation of the chosen methodology is the inability to detect causality.

4. Results and discussion

4.1 Female representation indicators and corporate social responsibility disclosure

Descriptive statistics of female representation indicators for CSR report disclosure groups are presented in Table 2.

There are on average 9.7% women on boards of banks not disclosing a CSR report, compared to 17.9% in banks disclosing a CSR report. When gender quotas are taken into account (%*wex1*), the difference is slightly smaller. In non-disclosing banks, the female representation exceeds the quota on average by 9.3 percentage points compared to 14.4 percentage points for disclosing banks. The minimum and maximum differences from the quota for both groups (CSR report disclosure vs non-disclosure) are roughly the same. As the means are larger for the disclosing group, female representation appears to have a positive association with CSR disclosure, in line with *H1* and *H2*. In comparison to workforce participation in the country (%*wex2*), the mean of female representation is more negative for non-disclosing banks compared to disclosing banks. This indicates that banks with greater female representation, in comparison to their workforce participation in the country, disclose a CSR report.

4.2 Female representation as corporate social responsibility disclosure determinant

Table 3 presents the results of logistic regressions. In line with *H1*, female representation on boards (%*wom*) exhibits a strong positive association with the bank's CSR disclosures in models M1a and M1b. This result is in line with the results by Barako and Brown (2008) and Kilic *et al.* (2015) for Kenyan and Turkish banks, respectively.

Once gender quotas are controlled for (models M2a and M2b), the odds ratio for the percentage of women on board exceeding the quota (%*wex1*) becomes statistically insignificant (inconclusive results with respect to *H2*). However, if banks are divided into two groups based on whether their female representation exceeds or is below the quota (models M3a and M3b), some interesting results emerge. In line with *H2*, the odds of CSR report disclosure remain higher in case female representation exceeds the quota (*dwhigh*)

Table 2 Descriptive statistics of female representation indicators for CSR report disclosure groups

	CSR report does not exist					*CSR report exists*					
Variable	*Mean*	*SD*	*Median*	*Min*	*Max*	*Mean*	*St.Dev*	*Median*	*Min*	*Max*	*Sign.*
%wom	9.7	10.4	7.7	0.0	61.5	17.9	12.7	16.7	0.0	60.0	***
%wex1	9.3	10.7	7.3	−33.0	61.5	14.4	13.7	13.3	−33.0	60.0	***
%wex2	−30.6	13.0	−33.7	−47.5	26.7	−24.1	13.5	−25.6	−48.8	40.0	***

Notes: For variable descriptions, see Table 1. Sign. refers to statistical significance: ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$; based on Wilcoxon rank-sum (Mann–Whitney) test

Table 3 Fixed effects logit estimates of CSR disclosure

Model	*M1a*	*M1b*	*M2a*	*M2b*	*M3a*	*M3b*
%wom	1.067 (0.019)***	1.074 (0.019)***				
%wex1			1.013 (0.015)	1.014 (0.015)		
dwhigh					4.044 (1.685)***	5.096 (2.262)***
dwlow					58.510 (65.420)***	88.370 (97.420)***
dCEOch	0.632 (0.218)	0.563 (0.207)	0.632 (0.208)	0.543 (0.189)*	0.637 (0.213)	0.563 (0.200)
Bsize	0.841 (0.039)***	0.822 (0.041)***	0.856 (0.037)***	0.838 (0.039)***	0.830 (0.037)***	0.563 (0.200)
%nonex	0.988 (0.014)	1.006 (0.017)	0.980 (0.013)	0.995 (0.016)	0.982 (0.015)	1.006 (0.019)
size	1368.3 (943.6)***	1030.8 (708.3)***	1370.2 (920.6)***	1031.2 (679.9)***	1224.9 (827.5)***	1005.0 (682.9)***
roa1	0.741 (0.082)***		0.712 (0.077)***	0.745 (0.082)***		
e/ta	1.507 (0.161)***		1.631 (0.167)***	1.589 (0.161)***		
pc1		1.505 (0.458)		2.017 (0.570)**		2.044 (0.597)**
No. of obs.	1018	879	998	861	998	861
Pseudo R^2	0.51	0.47	0.47	0.43	0.50	0.47
Chi^2	395.2 ***	316.1 ***	360.6 ***	281.7 ***	381.2 ***	307.6 ***

Notes: For variable descriptions, see Table 1. Dependent variable is CSR disclosure dummy (*dCSR*). All explanatory variables except for *%wex1*, *dwhigh* and *dwlow* are lagged by one year. Table presents odds ratios. Standard errors in parentheses. Statistical significance: ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$

as compared to cases when it corresponds exactly to the quota. Contrary to *H2*, female representation (*dwlow*) below the quota exhibits even stronger odds of starting to disclose the CSR report compared to when female representation corresponds exactly to the quota. The fact that both *dwhigh* and *dwlow* have statistically significant odds ratios above 1 could explain the inconclusive results reported for *%wex1* in Models M2a and M2b.

Positive association observed for below-quota dummy may reflect that banks having female representation below quota could use CSR reporting for impression management purposes to compensate for the failure to meet the gender quota[7]. This indicates that the implementation of gender quotas could be associated with increased disclosure of CSR reports, but could have no real impact on the sustainability of banks' operations. This is because women named to boards only to fulfil the quota are not empowered and cannot influence the board's strategic decisions. As our paper does not consider the actual CSR behaviour of banks, this issue deserves attention in future studies.

Insignificance of *%wex1* may also arise from the chosen disclosure proxy. As a robustness test, the same models were estimated with a disclosure dummy for voluntary CSR disclosure (results available upon request from authors). The main difference compared to results reported in Table 3 relates to quota-corrected dummies. Only above-quota representation of women contributes to voluntary CSR disclosure (supporting *H2*). This implies also that the association between CSR reporting and female representation can be vulnerable to the used reporting proxy. In this paper, a simplified CSR reporting indicator was used which has not been extensively used in previous studies. Therefore, future studies should consider alternative indicators of CSR disclosure. For example, more qualitative indicators based on content analysis should be used.

As the consideration of gender quotas did create some differences in the reported results compared to the simple female representation indicator used in previous research, it refers to a need for considering this factor in future studies focusing on the association of female representation with CSR disclosure, CSR performance or even company performance. It remains an important aspect to consider especially in studies focusing on cross-country samples covering countries with gender quotas.

In terms of other governance indicators, the odds ratios for the presence of CEO duality (*dCEOch*) and non-executive board members (*%nonex*) remain mostly statistically insignificant. Previous studies have usually referred to a positive association for both indicators (Barako and Brown, 2008; Jizi *et al.*, 2014; Khan, 2010). However, inconclusive

results for non-executive board members were similarly reported in Hossain and Reaz (2007) for Indian banks. Contrary to Jizi *et al.* (2014), having a larger board (*Bsize*) decreases the odds of CSR disclosure. It is possible that the differences in the results across studies arise from the differences in sample composition. However, it could also refer to the need for correcting these indicators for regulatory requirements. Because the focus of this paper is on women, legal requirements concerning other board characteristics are not considered.

From financial variables, bank size (*size*) exhibits a strong positive association with CSR disclosure decision, as expected. This result is in line with most of the previous CSR disclosure studies on banks (El-Bannany, 2007; Hamid, 2004; Hossain and Reaz, 2007; Khan, 2010) and supports the view that larger listed banks focus more on additional CSR disclosure efforts. However, performance indicators provide contradictory results. Profitability (*roa1*) has a negative association with CSR disclosure, corroborating the findings of El-Bannany (2007). This result may suggest that more profitable banks have no motive to start disclosing a CSR report or less profitable banks engage in impression management. At the same time equity ratio (*e*/*ta*) and, in most specifications, the combined performance indicator (*pc1*) refer to a positive association with the probability of CSR report disclosure. Considering the inability to address causation within the current methodological framework, these contradictions deserve attention in future studies focusing on banks' CSR disclosures.

4.3 Female representation as corporate social responsibility disclosure determinant in a cultural context

For considering the cultural context, the sample is first divided into two sub-samples based on the Hofstede masculinity score (*dmasc*) – banks in masculine countries (*dmasc* = 1) and banks in feminine countries (*dmasc* = 0). Alternatively, cultural context is captured by the indicator percentage of women on board exceeding the female workforce participation in the country (%*wex2*). The results based on these approaches are reported in Table 4.

Similar to Table 3, the higher percentage of women in banks' boards (%*wom*) increases the odds of CSR disclosure in both masculine and feminine countries. This refers to the support for *H1*. However, when female representation is corrected for gender quotas (%*wex1*), the positive association remains only in masculine countries and disappears in feminine countries. This suggests support for both *H3* and *H4* and shows that the cultural context plays a role in CSR disclosure behaviour and influences its association with female

Table 4 Fixed effects logit estimates of CSR disclosure using sub-samples

Sample *Model*	*dmasc = 0* *M1*	*dmasc = 1* *M1*	*dmasc = 0* *M2*	*dmasc = 1* *M2*	*All* *M2*
%wom	1.064 (0.030)**	1.104 (0.031)***			
%wex1			0.987 (0.020)	1.057 (0.027)**	
%wex2					1.082 (0.019)***
dCEOch	1.426 (0.780)	0.313 (0.190)*	1.471 (0.756)	0.284 (0.160)**	0.718 (0.244)
Bsize	0.961 (0.064)	0.753 (0.059)***	0.907 (0.062)	0.735 (0.057)***	0.851 (0.036)***
%nonex	1.012 (0.030)	0.964 (0.018)*	0.991 (0.028)	0.964 (0.018)**	0.983 (0.014)
size	22188.8 (28127.4)***	398.3 (430.9)***	9364.8 (10578.9)***	729.4 (811.2)***	1036.0 (687.9)***
roa1	0.915 (0.156)	0.736 (0.125)*	0.878 (0.159)	0.712 (0.116)**	0.753 (0.086)**
e/ta	1.113 (0.176)	1.470 (0.232)**	1.086 (0.167)	1.612 (0.241)***	1.428 (0.149)***
No. of obs.	515	455	500	450	998
Pseudo R^2	0.60	0.53	0.56	0.51	0.50
Chi^2	236.0***	184.7***	210.7***	173.5***	382.0***

Notes: For variable descriptions, see Table 1. Dependent variable is CSR disclosure dummy (*dCSR*). Sample *dmasc = 0* refers to feminine countries and *dmasc = 1* to masculine countries. All explanatory variables except for *%wex1* and *%wex2* are lagged by one year. Table presents odds ratios. Standard errors in parentheses. Statistical significance: ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$

representation on boards. Thus, the introduction of quotas in masculine countries could push banks towards greater CSR reporting and, hopefully, also towards more sustainable behaviour in their everyday activities.

The last column of Table 4 shows that the greater the proportion of women on boards compared to country's female workforce participation (%*wex2*), the more likely the banks are to start disclosing a CSR report. In terms of other explanatory variables, the results for masculine countries resemble those reported in Table 3 for all banks. The main difference is the negative association reported between CSR disclosure and CEO duality (*dCEOch*) and the proportion of non-executive board members (%*nonex*). In feminine countries, only the bank size maintains a positive association with CSR disclosure.

5. Conclusion

This study provides interesting insight into the unaddressed dimensions of CSR and governance studies by focusing on the association between CSR reporting of listed banks and female representation on boards while controlling for the impact of gender quotas. In line with many previous studies, there exists a positive association between the proportion of women on board and CSR disclosure. Positive association remains also after quota-corrections for banks with either below- or above-quota female representation. It can be observed that adding more women to boards than required by quota could affect boards' CSR reporting in masculine countries and not in feminine countries.

These results imply that the introduction of gender quotas may enable banks to improve their CSR reporting. However, this does not automatically guarantee sustainable behaviour of banks. There exist some signs that banks with below-quota female representation may be prone to impression management through CSR reporting. Poorer CSR performance could also occur if women appointed to the board due to a quota end up with insufficient saying-power. This shows that the investigation of the effects of gender quota deserves attention in future research. Further, the studies focused on the role of women in the context of different corporate outcomes (including corporate performance) should consider the impact of gender quotas.

Notes

1. As there exists no database for regulatory requirements for boards across countries, this information was hand-collected from the Codes of Corporate Governance of different countries accessed through the website of European Corporate Governance Institute (ECGI).
2. The countries represented in the sample are Australia, Austria, Belgium, Bermuda, Canada, China, Czech Republic, Cyprus, Denmark, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Ireland, Italy, Japan, Malaysia, The Netherlands, Norway, Philippines, Poland, Portugal, Russia, Singapore, South Korea, Spain, Sweden, Thailand, Turkey, Turkey, UK and the USA.
3. Only the USA and Japan are represented by more than ten banks per year. However, the proportion of their assets in the sample is slightly lower than in the whole population of listed banks.
4. Similar indicator has been used in papers focusing on non-financial firms (Gamerschlag *et al.*, 2011; Sierra-García *et al.*, 2015).
5. In the creation of this variable the implementation year and the compliance date of the quota are considered as well as whether it is mandatory to the specific bank based on its listing status, size, performance, ownership (e.g. state-owned enterprises), etc.
6. The threshold was set higher than 50% because the hypothesized association should be stronger for clearly masculine countries. The authors have tried lowering the threshold (results available upon request). However, this did not significantly alter the reported results. The sample included 12 masculine countries and 23 feminine countries.
7. Previous studies on CSR and financial reporting of banks have shown that their disclosures do remain vulnerable to impression management attempts when their performance is below expected (Laidroo and Ööbik, 2013; Laidroo and Tamme, 2016).

References

Ahern, K.R. and Dittmar, A.K. (2012), "The changing of the boards: the impact on firm valuation of mandated female board representation", *The Quarterly Journal of Economics*, Vol. 127 No. 1, pp. 137-197.

Barako, D.G. and Brown, A.M. (2008), "Corporate social reporting and board representation: evidence from the Kenyan banking sector", *Journal of Management & Governance*, Vol. 12 No. 4, pp. 309-324.

Benkraiem, R., Hamrouni, A., Lakhal, F. and Toumi, N. (2017), "Board independence, gender diversity and CEO compensation", *Corporate Governance: The International Journal of Business in Society*, Vol. 17 No. 5, pp. 845-860.

Betz, M., O'Connel, L. and Shepard, J.M. (1989), "Gender differences in proclivity for unethical behaviour", *Journal of Business Ethics*, Vol. 8 No. 5, pp. 321-324.

Carter, D.A., Simkins, B.J. and Simpson, W.G. (2003), "Corporate governance, board diversity and firm value", *The Financial Review*, Vol. 38 No. 1, pp. 33-53.

Clatworthy, M.A. and Jones, M.J. (2001), "The effect of thematic structure on the variability of annual report readability", *Accounting, Auditing & Accountability Journal*, Vol. 14 No. 3, pp. 311-326.

Deegan, C. (2002), "The legitimising effect of social and environmental disclosures – a theoretical foundation", *Accounting, Auditing & Accountability Journal*, Vol. 15 No. 3, pp. 282-311.

Dias, A., Rodrigues, L.L. and Craig, R. (2017), "Corporate governance effects on social responsibility disclosures", *Australasian Accounting, Business & Finance Journal*, Vol. 11 No. 2, pp. 3-22.

El-Bannany, M. (2007), "A study of determinants of social disclosure level in UK banks", *Corporate Ownership and Control*, Vol. 5 No. 1, pp. 120-130.

Fassin, Y. and Gosselin, D. (2011), "The collapse of a European bank in the financial crisis: an analysis from stakeholder and ethical perspectives", *Journal of Business Ethics*, Vol. 102 No. 2, pp. 169-191.

Fitzsimmons, S.R. (2012), "Women on boards of directors: why skirts in seats aren't enough", *Business Horizons*, Vol. 55 No. 6, pp. 557-566.

Freeman, R.E. (1984), *Strategic Management: A Stakeholder Approach*, Pitman, Boston, MA.

Gamerschlag, R., Möller, K. and Verbeeten, F. (2011), "Determinants of voluntary CSR disclosure: empirical evidence from Germany", *Review of Managerial Science*, Vol. 5 Nos 2/3, pp. 233-262.

García-Meca, E., Uribe-Bohórquez, M.V. and Cuadrado-Ballesteros, B. (2018), "Culture, board composition and corporate social reporting in the banking sector", *Administrative Sciences*, Vol. 8 No. 3, p. 41.

García-Sánchez, I.M., Cuadrado-Ballesteros, B. and Frias-Aceituno, J.V. (2016), "Impact of the institutional macro context on the voluntary disclosure of CSR information", *Long Range Planning*, Vol. 49 No. 1, pp. 15-35.

Hamid, F.Z.A. (2004), "Corporate social disclosure by banks and finance companies: Malaysian evidence", *Corporate Ownership and Control*, Vol. 1 No. 4, pp. 118-130.

Harjoto, M.A. and Rossi, F. (2019), "Religiosity, female directors, and corporate social responsibility for Italian listed companies", *Journal of Business Research*, Vol. 95, pp. 338-346.

Hofstede, G. (2001), *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations across Nations*, SAGE Publications, Thousand Oaks, CA.

Hofstede, G. (2011), "Dimensionalizing cultures: the Hofstede model in context", *Online Readings in Psychology and Culture*, Vol. 2 No. 1, p. 8.

Hossain, M. and Reaz, M. (2007), "The determinants and characteristics of voluntary disclosure by Indian banking companies", *Corporate Social Responsibility and Environmental Management*, Vol. 14 No. 5, pp. 274-288.

Hu, V.I. and Scholtens, B. (2014), "Corporate social responsibility policies of commercial banks in developing countries", *Sustainable Development*, Vol. 22 No. 4, pp. 276-288.

Huse, M. and Solberg, A.G. (2006), "Gender-related boardroom dynamics: how Scandinavian women make and can make contributions on corporate boards", *Women in Management Review*, Vol. 21 No. 2, pp. 113-130.

Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360.

Jizi, M.I., Salama, A., Dixon, R. and Stratling, R. (2014), "Corporate governance and corporate social responsibility disclosure: evidence from the US banking sector", *Journal of Business Ethics*, Vol. 125 No. 4, pp. 601-615.

John, K., De Masi, S. and Paci, A. (2016), "Corporate governance in banks", *Corporate Governance: An International Review*, Vol. 24 No. 3, pp. 303-321.

Khan, H.U.Z. (2010), "The effect of corporate governance elements on Corporate Social Responsibility (CSR) reporting: empirical evidence from private commercial banks of Bangladesh", *International Journal of Law and Management*, Vol. 52 No. 2, pp. 82-109.

Khan, I., Khan, I. and Senturk, I. (2019), "Board diversity and quality of CSR disclosure: evidence from Pakistan", *Corporate Governance: The International Journal of Business in Society*, Vol. 19 No. 6, pp. 1187-1203.

Kilic, M., Kuzey, C. and Ali, U. (2015), "The impact of ownership and board structure on Corporate Social Responsibility (CSR) reporting in the Turkish banking industry", *Corporate Governance: The International Journal of Business in Society*, Vol. 15 No. 3, pp. 357-374.

Kim, Y. and Kim, S.-Y. (2010), "The influence of cultural values on perceptions of corporate social responsibility: application of Hofstede's dimensions to Korean public relations practitioners", *Journal of Business Ethics*, Vol. 91 No. 4, pp. 485-500.

Kyaw, K., Olugbode, M. and Petracci, B. (2017), "Can board gender diversity promote corporate social performance?", *Corporate Governance: The International Journal of Business in Society*, Vol. 17 No. 5, pp. 789-802.

Laeven, L. (2013), "Corporate governance: what's special about banks?", *Annual Review of Financial Economics*, Vol. 5 No. 1, pp. 63-92.

Laidroo, L. (2016), "Reliability of graphs disclosed in annual reports of Central and Eastern European banks", *Eastern European Economics*, Vol. 54 No. 4, pp. 319-350.

Laidroo, L. and Ööbik, U. (2013), "Banks' CSR disclosures–headquarters versus subsidiaries", *Baltic Journal of Management*, Vol. 9 No. 1, pp. 47-70.

Laidroo, L. and Sokolova, M. (2015), "International banks' CSR disclosures after the 2008 crisis", *Baltic Journal of Management*, Vol. 10 No. 3, pp. 270-294.

Laidroo, L. and Tamme, N. (2016), "Graphs in annual reports of banks: trustworthy or not?", *Business Challenges in the Changing Economic Landscape*, Vol. 1, *Proceedings of the 14th Eurasia Business and Economics Society Conference*, *Springer*, *Cham*, pp. 147-166.

Laugel, J. and Laszlo, C. (2009), "Financial crisis: the opportunity for sustainable value creation in banking and insurance", *Journal of Corporate Citizenship*, Vol. 2009 No. 35, pp. 24-38.

Lin, T.L., Liu, H.Y., Huang, C.J. and Chen, Y.C. (2018), "Ownership structure, board gender diversity and charitable donation", *Corporate Governance: The International Journal of Business in Society*, Vol. 18 No. 4, pp. 655-670.

Matsa, D.A. and Miller, A.R. (2013), "A female style in corporate leadership? Evidence from quotas", *American Economic Journal: Applied Economics*, Vol. 5 No. 3, pp. 136-169.

Menassa, E. and Brodhäcker, M. (2017), "The type and quantity of corporate social disclosures of german 'universal' banks", *Journal of Management & Governance*, Vol. 21 No. 1, pp. 119-143.

Nielsen, S. and Huse, M. (2010), "The contribution of women on boards of directors: going beyond the surface", *Corporate Governance: An International Review*, Vol. 18 No. 2, pp. 136-148.

O'Dwyer, B. (2002), "Managerial perceptions of corporate social disclosure: an Irish stories", *Accounting, Auditing & Accountability Journal*, Vol. 15 No. 3, pp. 406-436.

Orazalin, N. (2019), "Corporate governance and Corporate Social Responsibility (CSR) disclosure in an emerging economy: evidence from commercial banks of Kazakhstan", *Corporate Governance: The International Journal of Business in Society*, Vol. 19 No. 3, pp. 490-507.

Peng, Y.S., Dashdeleg, A.U. and Chih, H.L. (2014), "National culture and firm's CSR engagement: across-nation study", *Journal of Marketing & Management*, Vol. 5 No. 1, pp. 38-49.

Roman, A. and Şargu, A.C. (2013), "Analysing the financial soundness of the commercial banks in Romania: an approach based on the CAMELS framework", *Procedia Economics and Finance*, Vol. 6, pp. 703-712.

Sierra-García, L., Zorio-Grima, A. and García-Benau, M.A. (2015), "Stakeholder engagement, corporate social responsibility and integrated reporting: an exploratory study", *Corporate Social Responsibility and Environmental Management*, Vol. 22 No. 5, pp. 286-304.

Tapver, T. (2019), "CSR reporting in banks: does the composition of the board of directors matter?", *Quantitative Finance and Economics*, Vol. 3 No. 2, pp. 286-314.

Terjesen, S., Aguilera, R.V. and Lorenz, R. (2015), "Legislating a woman's seat on the board: institutional factors driving gender quotas for boards of directors", *Journal of Business Ethics*, Vol. 128 No. 2, pp. 233-251.

Terjesen, S. and Sealy, R. (2016), "Board gender quotas: exploring ethical tensions from a multi-theoretical perspective", *Business Ethics Quarterly*, Vol. 26 No. 1, pp. 23-65.

Westphal, J.D. and Milton, L.P. (2000), "How experience and network ties affect the influence of demographic minorities on corporate boards", *Administrative Science Quarterly*, Vol. 45 No. 2, pp. 366-398.

Zaman, R., Bahadar, S., Kayani, U. and Arslan, M. (2018), "Role of media and independent directors in corporate transparency and disclosure: evidence from an emerging economy", *Corporate Governance: The International Journal of Business in Society*, Vol. 18 No. 5, pp. 858-885.

Corresponding author

Triinu Tapver can be contacted at: triinu.tapver@taltech.ee

Appendix 3. Publication III

LUCK AND SKILL IN THE PERFORMANCE OF GLOBAL EQUITY FUNDS IN CENTRAL AND EASTERN EUROPE

Publication III
Tapver, T. (2022). Luck and skill in the performance of global equity funds in Central and Eastern Europe. *Managerial Finance*, ahead-of-print. DOI: https://doi.org/10.1108/MF-01-2022-0051 (ETIS 1.1)

Luck and skill in the performance of global equity funds in Central and Eastern Europe

Triinu Tapver
Department of Economics and Finance, Tallinn University of Technology, Tallinn, Estonia

Received 28 January 2022
Revised 11 June 2022
5 August 2022
6 September 2022
Accepted 9 September 2022

Abstract

Purpose – The authors examine the performance of individual global equity funds in Central and Eastern Europe (CEE) and separate the skill of their fund managers from luck.

Design/methodology/approach – The authors use cross-sectional bootstrap simulations to study the monthly net and gross returns of 175 funds over the period September 2005 to December 2019. Simulations are applied to three, four, and five-factor asset pricing models, and to regressions run on fund-specific benchmark indexes. The authors also examine the value added by all funds and by fund size groups.

Findings – Using multifactor models, a majority of the individual funds fail to deliver alpha, both net and gross of fees; whereas, most of the negative alphas appear due to poor skills, not bad luck. Relative to benchmark indexes, about 5% of the sample shows skill only gross of fees, indicating that fund management fees absorb this skill. As a whole, global equity funds in CEE add more economic value than they destroy, gross of fees, which is largely driven by large funds.

Practical implications – Market-tracking passive indexes are the most reliable choice for investors who want to maximise their risk-adjusted returns at the lowest possible cost. However, investors with a high level of risk appetite might prefer small actively managed funds in CEE when market conditions are stable or growing. Investors who are less risk tolerant might prefer large actively managed funds.

Originality/value – This is the first study to shed light on the presence of skill in mutual fund returns in CEE.

Keywords Mutual fund performance, Bootstrap, Luck, Skill, CEE

Paper type Research paper

1. Introduction

The debate over the relative advantages of active and passive fund management has long been a hot topic in the asset management industry. The generally high costs of active management and the increasing pressure from lower-cost passively managed funds have heated this debate even further (Feldman *et al.*, 2020; Malkiel, 2013). One of the key questions about actively managed mutual funds is whether they deliver positive, zero or negative risk-adjusted abnormal returns. Or to put it differently, whether they deliver sufficient alpha to beat their passive counterparts?

The literature has provided contradictory evidence on this matter. Actively managed funds generally underperform their benchmarks (e.g. Blake and Timmermann, 1998; Carhart, 1997; Jensen, 1968; Malkiel, 1995; Pástor and Vorsatz, 2020; Petajisto, 2013), but superior performance has been detected at some actively managed funds (e.g. Berk and van Binsbergen, 2015; Fortin and Michelson, 2002; Guercio and Reuter, 2014; Kacperczyk *et al.*, 2008; Wermers, 2000). Pástor *et al.* (2015) even claim that the active management industry has increased its expertise over time, but the effect on fund performance has been neutralised by the growth in the size of the industry. Even if some funds have shown very good or poor performance over a longer period, it is still questionable whether their abnormal returns can persist, and if so, for how long. It is also unclear whether these returns can be explained by the

JEL Classification — G11, G15

Managerial Finance

0307-4358
DOI 10.1108/MF-01-2022-0051

skill or the lack of skill of the fund manager, or merely by persistent good or bad luck. In any case, investors will want to search for skilful management of their money.

The study of the US equity mutual fund industry by Kosowski *et al.* (2006) established a new strand in the literature on mutual funds. They proposed a cross-sectional bootstrap methodology that allows the skill of a fund manager to be separated from luck, and they demonstrated that only a sizable minority of truly skilful funds exist. Since then, adjusted methods have been proposed for separating the skill of fund managers from luck (e.g. Barras *et al.*, 2010; Fama and French, 2010). The approach of Kosowski *et al.* (2006) is still superior though when a heavily unbalanced panel of fund returns is used.

The measure of skill has historically been net alpha, which is the abnormal return after fund management fees. More recent research has converged around the alternative strand of literature inspired by Berk and Green (2004), and later by Berk and van Binsbergen (2015). In their view, net alphas are not determined by skill but by the competition between investors, while skill is reflected in gross alphas. This suggests that gross returns need to be analysed when the skill of fund managers is studied.

The majority of the studies separating skill from luck use data on returns from developed markets, mostly those in the US and the UK or from Asia (e.g. Cuthbertson *et al.*, 2008; Harvey and Liu, 2020; Huang *et al.*, 2020; Sharma and Paul, 2015; Song, 2020). Their conclusions are fairly similar to those of Kosowski *et al.* (2006). However, separating luck and skill is even more important in emerging markets, including Central and Eastern Europe (CEE). Although investment funds are assumed to be able to provide more productive and safer investment opportunities for investors with lower levels of financial literacy, the skills of fund managers in rapidly expanding investment markets may not improve as rapidly as those markets expand. This might result in a shortage of skilful fund managers.

Central and Eastern Europe (CEE) stands out from all the other emerging markets because of its higher growth levels. The growth in the region's stock markets has outpaced that in other emerging markets during 2016–2020, with stock market capitalisation growing by 8.51% per annum on average. In comparison, the same figure for Asian markets is 5.77%. Despite such rapid growth, there remains significant potential for development in CEE as the ratio of stock market capitalisation to GDP remains at 11%, while it is around 47% in Asia, 148% in the US, and 29% in the EU [1]. By 2019, the net assets of CEE investment funds had grown by about 32% in the previous five years and the number of investment funds grew about 1.2 times faster than in Asia and 1.6 times faster than in the rest of Europe [2]. This was achieved by channelling most of the portfolio investments and fund assets outside the region to markets where there are more investment opportunities [3]. However, there remains more room for growth as the average size and the total number of funds is still low [4], the household savings rate in CEE is higher than that in the US or the average in the EU, and the financial literacy rate remains low [5].

Despite the potential of the market, there has been little research on fund performance in CEE to date, and a larger proportion of the literature has concentrated on funds from individual or selected CEE countries (Białkowski and Otten, 2011; Bóta and Ormos, 2017; Filip, 2014, 2017). The few studies analysing the CEE region as a whole have focused only on the general performance of the industry, and they find that it tends to underperform on average (e.g. Bóta and Ormos, 2016; Lemeshko and Rejnuš, 2015). This result could be due to lower skill or worse luck. This study tackles the gaps in the literature and examines the performance of individual global equity funds in CEE and separates their fund manager skill from luck.

As our main interest is the presence and distribution of individual funds with skill or poor skill, we follow the bootstrap methodology first applied in Kosowski *et al.* (2006). Bootstrap simulations are applied to monthly mutual fund returns using the three-factor model of Fama and French (1993), the four-factor model of Carhart (1997), the five-factor model of Fama and French (2015), and benchmark regressions, which are regressions relative to fund-specific

benchmark indexes denoted in fund prospectuses. Abnormal performance is measured by alphas and alpha *t*-statistics. To distinguish luck from skill we compare the distributions of real and simulated alpha *t*-statistics. We use the monthly net returns and gross returns for 175 open-ended global equity mutual funds incorporated in CEE countries. The sample period is from September 2005 to December 2019.

We find that a majority of global equity funds in CEE fail to deliver sufficiently large alpha to beat factor returns, both before and after fees, and there is only one skilful fund. Intriguingly, our results reveal that most of the inferior performers have not only bad luck, but also poor skills. This result remains stable even after the tests are restricted to the period after the financial crisis. Relative to the fund-specific benchmark indexes denoted in fund prospectuses, the proportion of skill is higher on a gross return basis at about 5% of our mutual fund sample. However, fund management fees absorb most of this skill, with the sole exception of the top fund. As a whole, our mutual fund sample adds considerably more value than it destroys, gross of fees, which is largely driven by large funds. Our sensitivity tests confirm that the broad qualitative inferences are robust to controlling for survival bias, the number of bootstrap repetitions, and possible home bias.

This paper contributes to the literature in several ways. First, it is the first study to differentiate between skill and luck in mutual fund returns in CEE. Second, the focus is on net returns as well as gross returns. Third, the focus is on the value added by fund managers, while the paper also investigates the dichotomy between the value added by small funds and by large funds. Fourth, this paper examines the performance of individual funds rather than the general performance of mutual funds in CEE. The fifth novelty is the focus on the CEE region as a whole, which goes beyond existing studies that typically look at single countries from CEE.

The rest of the paper proceeds as follows. Section 2 describes the data. Section 3 explains the methodology. The baseline bootstrap results are analysed in section 4. Section 4 also analyses the value added by fund managers and the value added by fund size groups. The sensitivity of the results is tested in section 5. Section 6 concludes.

2. Data

The data on mutual funds are gathered from the Thomson Reuters Eikon database. We consider the data for open-ended mutual funds incorporated in CEE countries that are in the European Union [6]. We focus on the period from September 2005 to December 2019. As the database contains data at the level of share classes, we aggregate share-class level returns into fund-level returns [7]. Monthly net returns are measured in US dollars gross on all distributions passed to investors, such as dividends and capital gains, and net of management fees. We also run estimations using monthly gross returns by adding one-twelfth of the fund's yearly expense ratio. This follows a more recent literature that claims that investigating fund manager skill in comparison to luck requires gross returns to be analysed (e.g. Berk and Green, 2004; Berk and van Binsbergen, 2015).

We focus our sample on equity funds with globally invested portfolios, or global equity funds. We exclude index funds since our aim is to examine the skill in the performance of actively managed funds. Merged and liquidated funds that were in existence during the sample period are also included. To avoid incorporating very short series of returns data, we set the minimum requirement for survival as at least 24 monthly returns during the sample period, which is similar to the practice in previous studies using the bootstrap methodology (Cuthbertson *et al.*, 2008; Fama and French, 2010; Kosowski *et al.*, 2006). This requirement is later set to 18, 30 or 36 months in sensitivity tests.

The final sample contains fund-level monthly returns on 175 actively managed open-ended equity mutual funds that invest globally and are incorporated in CEE countries [8]. There are 117 surviving funds among them and 58 non-surviving funds. We focus first on the

whole period of September 2005 to December 2019, then we examine separately the period after the financial crisis from May 2009 to December 2019 to eliminate the severe negative effect of the crisis. During that period, 163 funds, 117 of them surviving and 46 non-surviving, met the minimum survival criteria.

The data for the risk-free rate, the market return and factor returns are measured in US dollars and gathered from Kenneth French's database [9], as in some previous studies (e.g. Bartholdy and Peare, 2005; In and Kim, 2007; Harvey and Liu, 2020). The return on the US one-month T-bill is used as a proxy for the risk-free rate. The baseline estimations use market and factor returns from global markets [10].

3. Methodology

3.1 Regression framework

In this paper, we measure the performance of individual mutual funds in CEE using three alternative multifactor models, which are the three-factor model of Fama and French (1993), the four-factor model of Carhart (1997), and the five-factor model of Fama and French (2015). In Section 4.3, we also use benchmark regressions to examine the performance of each mutual fund relative to its fund-specific benchmark index in the fund prospectus. The four models are represented by equations (1), (2), (3), and (4) respectively.

$$R_{it} - RF_t = \alpha_i + \beta_i(RM_t - RF_t) + \gamma_i SMB_t + \delta_i HML_t + \varepsilon_{it} \quad (1)$$

$$R_{it} - RF_t = \alpha_i + \beta_i(RM_t - RF_t) + \gamma_i SMB_t + \delta_i HML_t + \varphi_i MOM_t + \varepsilon_{it} \quad (2)$$

$$R_{it} - RF_t = \alpha_i + \beta_i(RM_t - RF_t) + \gamma_i SMB_t + \delta_i HML_t + \eta_i RMW_t + \theta_i CMA_t + \varepsilon_i \quad (3)$$

$$R_{it} - RF_t = \alpha_i + \beta_i(RBM_{it} - RF_t) + \varepsilon_i \quad (4)$$

where R_{it} is the month t return of mutual fund i and RF_t is the month t risk-free rate. The difference $R_{it} - RF_t$ captures the excess return of mutual fund i in month t. $RM_t - RF_t$ captures the excess return of a value-weighted aggregate market proxy portfolio. SMB_t, HML_t and MOM_t are the month t factor returns of global portfolios for size, book-to-market equity, and one-year momentum in stock returns. RMW_t and CMA_t are the profitability and investment factors that extend the three-factor model. In equation (4), RBM_{it} is the return of a fund-specific benchmark index denoted in the prospectus of mutual fund i [11]. The intercept α_i represents the risk-adjusted return of the mutual fund portfolio that is left unexplained by the asset pricing model. The statistical significance of α_i is determined from t-statistics. The alphas (α_i), factor loadings (β_i, γ_i, δ_i, φ_i, η_i, θ_i) and residuals (ε_{it}) are evaluated from the OLS estimations, using the monthly excess returns ($R_{it} - RF_t$) for each mutual fund i.

Table 1 presents the regression results for the equally-weighted (EW) portfolio [12] of mutual fund returns with all three multifactor models across both the whole period and the period after the crisis. The results suggest that global equity funds in CEE have generally failed to deliver risk-adjusted abnormal returns, or alphas, even before fees. As expected, alphas are slightly less negative in the period after the crisis. Monthly gross alphas (see Panel A) are always around 0.20% point higher than net alphas (see Panel B), whereas net alphas range from −0.46 to −0.51% per month. This suggests that fund management fees in CEE generally absorb almost half of the abnormal performance. The market betas ($\beta_{RM} - RF$) are slightly less than 1 and are highly significant. Global equity funds in CEE are in general not exposed to *SMB*, *MOM* and *RMW* factor returns as the corresponding regression coefficients in Panel C are not statistically significant. The value premium (*HML*) is insignificant and close to zero with the three and four-factor models, but it turns positive and significant when the five-factor model is used. This dynamic suggests that the negative exposure to *HML* is

Table 1.
Regression results for the equally weighted (EW) portfolio

	9.2005–2019			5.2009–2019		
	Three-factor model	Four-factor model	Five-factor model	Three-factor model	Four-factor model	Five-factor model
Panel A: Results using net returns						
Net α	−0.51*** (−3.05)	−0.50*** (−3.04)	−0.47*** (−3.40)	−0.46*** (−3.02)	−0.46*** (−2.67)	−0.50*** (−3.08)
R^2	81.45%	81.46%	83.81%	76.01%	76.01%	77.25%
R^2 Adjusted	81.12%	81.01%	83.32%	75.43%	75.23%	76.32%
Panel B: Results using gross returns						
Gross α	−0.32* (−1.86)	−0.31* (−1.84)	−0.28** (−2.00)	−0.27* (−1.75)	−0.26 (−1.53)	−0.31* (−1.89)
R^2	81.70%	81.71%	83.59%	76.15%	76.15%	77.26%
R^2 Adjusted	81.37%	81.27%	83.10%	75.57%	75.38%	76.32%
Panel C: Factor loadings						
β_{RM-RF}	0.91*** (12.79)	0.91*** (12.89)	0.83*** (19.40)	0.80*** (17.10)	0.80*** (14.84)	0.79*** (16.05)
γ_{SMB}	0.09 (0.93)	0.09 (0.95)	0.06 (0.72)	0.06 (0.60)	0.06 (0.60)	0.10 (1.13)
δ_{HML}	0.004 (−0.04)	−0.02 (−0.15)	0.29*** (2.65)	0.06 (0.65)	0.05 (0.51)	0.27* (1.91)
φ_{MOM}		−0.02 (−0.38)			−0.01 (−0.11)	
η_{RMW}			0.18 (1.09)			0.24 (1.08)
θ_{CMA}			−0.58*** (−2.86)			−0.39* (−1.71)

Note(s): This table reports the regression results for an equally-weighted (EW) portfolio of mutual fund monthly returns for the whole period of 9.2005–2019 and for the post-crisis period of 5.2009–2019. Panels A and B represent the results using net and gross returns respectively. The estimated factor loadings of the models based on net returns remained identical to those corresponding to models based on gross returns. We thus report factor loadings commonly in Panel C. The *t*-statistics estimated based on Newey–West heteroscedasticity and autocorrelation-adjusted standard errors are reported in parentheses. ***, **, and * denote the statistical significance at the 1%, 5%, and 10% level respectively

absorbed by the investment factor (*CMA*) in the five-factor model, which is in line with Fama and French (2015).

3.2 Bootstrap simulations

We use a cross-sectional bootstrap simulation to differentiate between luck and skill in the returns on individual mutual funds in CEE. The bootstrap methodology is needed because our mutual fund returns and alphas do not follow a normal distribution. Standard performance tests based on conventional statistical measures fail in this case, as they make inadequate assumptions about the distributions of the fund returns (for a discussion, see Kosowski *et al.*, 2006).

In the baseline estimations, the bootstrap methodology is applied to the three, four, and five-factor models, and the benchmark regressions presented in equations (1), (2), (3), and (4). The simulations follow the procedure applied in Kosowski *et al.* (2006), so we provide here a shorter description of this methodology. The benefit of this approach is that the number of returns of a fund in a simulation always corresponds to the number of that fund's actual returns, which is crucial because of the heavily unbalanced nature of the panel with our mutual fund sample. The shortcoming of this approach is its assumption that the residuals are uncorrelated across funds, even though some funds actually follow similar strategies. This could potentially lead the inferences toward positive performance, a point made by Fama and French (2010).

Bootstrap simulations consist of four steps. In the first step, we run OLS regressions separately for all the individual funds in the sample. For each fund i, we save the estimated alpha ($\widehat{\alpha}_i$), the estimated factor loadings ($\widehat{\beta}_i, \widehat{\gamma}_i, \widehat{\delta}_i, \widehat{\varphi}_i, \widehat{\eta}_i, \widehat{\theta}_i$), the t-statistic of alpha $\widehat{t}_{\widehat{\alpha i}}$, and the time series of the estimated residuals $\widehat{\varepsilon}_{it}$. In the second step, we use the bootstrap simulations to generate 1,000 random samples for each fund i as a time series of the saved estimated fund residuals $\widehat{\varepsilon}_{it}$. In the third step, the bootstrap simulations generate 1,000 time series of pseudo monthly excess returns r_{it}^b for each fund i, assuming the null hypothesis (H0) of zero abnormal performance [13]. This means that the real alpha and the real alpha t-statistic are set to zero ($\widehat{\alpha}_i = 0$ and $\widehat{t}_{\widehat{\alpha i}} = 0$) by construction, as shown in equations (5), (6), (7), and (8) below.

$$r_{it}^b = (R_{it} - RF_t)^b = \widehat{\beta}_i(RM_t - RF_t) + \widehat{\gamma}_i SMB_t + \widehat{\delta}_i HML_t + \widehat{\varepsilon}_{it}^b, t = s_{T_{i0}}^b, \ldots, s_{T_{iT}}^b \quad (5)$$

$$r_{it}^b = (R_{it} - RF_t)^b = \widehat{\beta}_i(RM_t - RF_t) + \widehat{\gamma}_i SMB_t + \widehat{\delta}_i HML_t + \widehat{\varphi}_i MOM_t + \widehat{\varepsilon}_{it}^b, t = s_{T_{i0}}^b, \ldots, s_{T_{iT}}^b \quad (6)$$

$$r_{it}^b = (R_{it} - RF_t)^b = \widehat{\beta}_i(RM_t - RF_t) + \widehat{\gamma}_i SMB_t + \widehat{\delta}_i HML_t + \widehat{\eta}_i RMW_t + \widehat{\theta}_i CMA_t + \widehat{\varepsilon}_{it}^b, t = s_{T_{i0}}^b, \ldots, s_{T_{iT}}^b \quad (7)$$

$$r_{it}^b = (R_{it} - RF_t)^b = \widehat{\beta}_i(RBM_{it} - RF_t) + \widehat{\varepsilon}_{it}^b, t = s_{T_{i0}}^b, \ldots, s_{T_{iT}}^b \quad (8)$$

This process generates 1,000 time series of pseudo excess returns for each fund i. The length of these time series is kept the same as it was in the original dataset. In the fourth step, we use the time series of pseudo excess returns for each fund i to estimate all four performance models. With each performance model we then obtain 1,000 estimated pseudo alphas ($\widehat{\alpha}_i^b$) and pseudo alpha t-statistics ($\widehat{t}_{\widehat{\alpha i}}^b$) for each fund i. This results in a cross-sectional draw of bootstrapped alphas and alpha t-statistics. These pseudo alphas and pseudo alpha t-statistics are the outcome of sampling variation, or in effect of pure luck.

If the bootstrapped gross alphas ($\widehat{\alpha}_i^b$) or alpha *t*-statistics ($\widehat{t}_{\widehat{\alpha i}}^{\,b}$) are consistently lower than the gross alpha ($\widehat{\alpha}_i$) or corresponding alpha *t*-statistic ($\widehat{t}_{\widehat{\alpha i}}$) from the real data, we interpret the fund's abnormal performance as being the result of the fund manager's skill. In this case, the fund performance cannot be explained only by sampling variation, representing luck, and so H0 is rejected. At the negative end of the performance scale, we can infer the presence of negative skills. By looking at the net returns, we can examine whether the fund managers have enough skill to cover the fund fees. The bootstrapped *p*-value gives a measure of probability that a fund manager is skilled or poorly skilled.

The main performance measure in the bootstrap analysis is the alpha *t*-statistic ($\widehat{t}_{\widehat{\alpha i}}$) rather than alpha ($\widehat{\alpha}_i$). The *t*-statistic has better properties for controlling for heterogeneous risk-taking between individual funds, and is more robust to survivorship bias (Brown *et al.*, 1992).

4. Baseline bootstrap results

4.1 Whole period

Table 2 presents the bootstrap results for individual funds for the whole sample period from September 2005 to December 2019 across all three models using either net returns (Panel A), or gross returns (Panel B). Funds are ranked from bottom to top by their actual alpha *t*-statistics. The top fund exhibits an actual three-factor *t*-statistic of 9.64 with the corresponding abnormal performance, giving a real net alpha of 0.21% per month, or 2.51% per year when annualised. The bootstrapped *p*-value of <0.01 for the top fund shows that fewer than 1% of the 1,000 simulations exhibited a higher alpha *t*-statistic than 9.64. The results in Panel B suggest that even before fees, only the top fund outperforms the market. This means that we can reject the H0, and the abnormal performance of the top fund can probably be attributed to superior fund management skills. We detect good luck among all the rest of the funds with positive alpha, as a majority of the bootstrapped *p*-values are close to 1.00. Our results are relatively stable across different multifactor models.

At the left side of the performance scale in Table 2, we already start to detect negative net abnormal performance between the 95th percentile and the 90th depending on the model. The gross return data show the proportion of negative alphas to be slightly lower, as they start from the 80th percentile. Surprisingly, the vast majority of the bootstrapped *p*-values of the funds with negative alpha strongly reject the H0 of zero underperformance at the 5% level. This seems to indicate that the negative alphas of individual funds in CEE are mostly delivered not because of bad luck, but probably because the fund management abilities are not good enough, even before fees. The exception is the worst performing fund, and funds up to the 1st percentile when data before fees are used. Our inferences are remarkably similar whichever model is used.

We are aware that our dominantly negative results might have been impacted by the time period used in the first tests, which covers the whole duration of the global financial crisis of 2007–08. This may have amplified the severe negative effect and made the results worse than they would otherwise have been. To eliminate this potential distortion, we next run the set of tests focusing only on the period after the crisis from May 2009 to December 2019.

4.2 The post-crisis period

The bootstrap results for the period of May 2009 to December 2019 across various percentile points are shown in Table 3. As we re-applied the minimum requirement of 24 observations, 6.9% of the funds dropped out of the tests. The results from the net returns seem fairly similar to those of the entire period in Table 2 with the exception of the bottom fund, which now shows the probable presence of poor skill. The bootstrapped *p*-values from the gross returns

Table 2.
Baseline bootstrap results for the whole period (September 2005–December 2019)

		Bottom	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%	Top
Panel A: Results using net returns																
Three-factor model	*t*-statistic	−3.77	−3.50	−3.05	−2.83	−2.52	−2.26	−1.97	−1.65	−1.35	−1.09	−0.85	−0.28	0.05	0.93	9.64
	Bootstrapped *p*-value	0.15	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	1.00	<0.01
Four-factor model	*t*-statistic	−3.71	−3.58	−2.96	−2.82	−2.43	−2.10	−1.91	−1.60	−1.28	−1.08	−0.81	−0.28	−0.01	0.89	9.26
	Bootstrapped *p*-value	0.17	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	<0.01
Five-factor model	*t*-statistic	−5.11	−3.35	−3.00	−2.79	−2.47	−2.03	−1.86	−1.40	−1.17	−0.95	−0.64	−0.25	0.30	1.25	7.35
	Bootstrapped *p*-value	0.04	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	1.00	<0.01
Panel B: Results using gross returns																
Three-factor model	*t*-statistic	−3.32	−2.78	−2.31	−2.12	−1.75	−1.52	−1.17	−0.99	−0.76	−0.52	−0.24	0.32	0.86	1.62	19.37
	Bootstrapped *p*-value	0.29	0.13	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	1.00	1.00	<0.01
Four-factor model	*t*-statistic	−3.33	−3.00	−2.15	−1.99	−1.64	−1.46	−1.13	−0.92	−0.78	−0.52	−0.25	0.31	0.76	1.78	18.55
	Bootstrapped *p*-value	0.32	0.06	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	1.00	0.99	<0.01
Five-factor model	*t*-statistic	−4.14	−2.83	−2.37	−2.12	−1.62	−1.35	−1.00	−0.81	−0.60	−0.36	−0.06	0.47	0.97	2.44	15.24
	Bootstrapped *p*-value	0.14	0.15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	1.00	0.58	<0.01

Note(s): This table reports the real alpha *t*-statistics ("*t*-statistic") and the cross-sectionally bootstrapped *p*-values ("Bootstrapped *p*-value") for the whole period of 9.2005–2019. Panels A and B represent the results using net and gross returns respectively. The *t*-statistics are based on Newey–West heteroscedasticity and autocorrelation-adjusted standard errors

Table 3.
Baseline bootstrap results for the post-crisis period (May 2009–December 2019)

		Bottom	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%	Top
Panel A: Results using net returns																
Three-factor model	*t*-statistic	−5.14	−3.66	−3.36	−2.98	−2.44	−2.14	−1.77	−1.47	−1.19	−1.00	−0.66	−0.13	0.49	1.10	9.64
	Bootstrapped *p*-value	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	1.00	<0.01
Four-factor model	*t*-statistic	−4.92	−3.45	−2.95	−2.77	−2.37	−1.99	−1.71	−1.42	−1.17	−0.98	−0.61	−0.18	0.26	0.99	9.26
	Bootstrapped *p*-value	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	1.00	<0.01
Five-factor model	*t*-statistic	−5.11	−3.96	−3.24	−2.77	−2.39	−2.02	−1.70	−1.40	−1.16	−0.91	−0.67	−0.10	0.46	1.43	7.35
	Bootstrapped *p*-value	0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	1.00	<0.01
Panel B: Results using gross returns																
Three-factor model	*t*-statistic	−4.83	−3.08	−2.51	−2.19	−1.79	−1.39	−1.07	−0.82	−0.58	−0.27	0.07	0.68	1.24	1.87	19.37
	Bootstrapped *p*-value	0.03	0.03	0.02	0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	1.00	0.99	0.93	0.86	<0.01
Four-factor model	*t*-statistic	−4.63	−2.87	−2.27	−1.92	−1.55	−1.22	−0.95	−0.78	−0.55	−0.28	−0.04	0.58	0.92	1.51	18.55
	Bootstrapped *p*-value	0.05	0.09	0.04	0.04	0.03	0.03	0.02	0.01	<0.01	<0.01	<0.01	<1.00	<1.00	0.99	<0.01
Five-factor model	*t*-statistic	−4.14	−3.12	−2.57	−2.17	−1.59	−1.35	−1.06	−0.78	−0.55	−0.30	−0.03	0.80	1.13	1.99	15.24
	Bootstrapped *p*-value	0.14	0.06	0.02	0.02	0.03	0.02	0.02	0.02	<0.01	<0.01	<0.01	0.98	0.99	0.85	<0.01

Note(s): This table reports the real alpha *t*-statistics ("*t*-statistic") and the cross-sectionally bootstrapped *p*-values ("Bootstrapped *p*-value") for the post-crisis period of 5.2009–2019. Panels A and B represent the results using net and gross returns respectively. The *t*-statistics are based on Newey–West heteroscedasticity and autocorrelation-adjusted standard errors

(Panel B) are somewhat lower at the positive side of the performance scale and higher at the negative side than they were for the whole period. Even so, all the *p*-values still indicate either good luck or poor skill, except those for the top fund. The results are the least negative with the five-factor model, which shows bad luck for the bottom fund.

Surprisingly, the individual alpha *t*-statistics in the extreme right tail are not substantially different in size to those of the whole period. Although market conditions were more favourable for delivering positive abnormal returns after the crisis, the top performers have consistently outperformed the market and the factor portfolios to the same degree. The histograms of the alpha *t*-statistics in Figure 1 also illustrate this dichotomy. The top and bottom funds tend to exhibit more extreme actual *t*-statistics and a substantially higher degree of variance and non-normality in their *t*-statistic distributions than do the funds closer to the median. The graph for the "Top Fund" illustrates that the actual *t*-statistics for all the models (the vertical lines) lie in the far-right tail of the distribution. They are also considerably

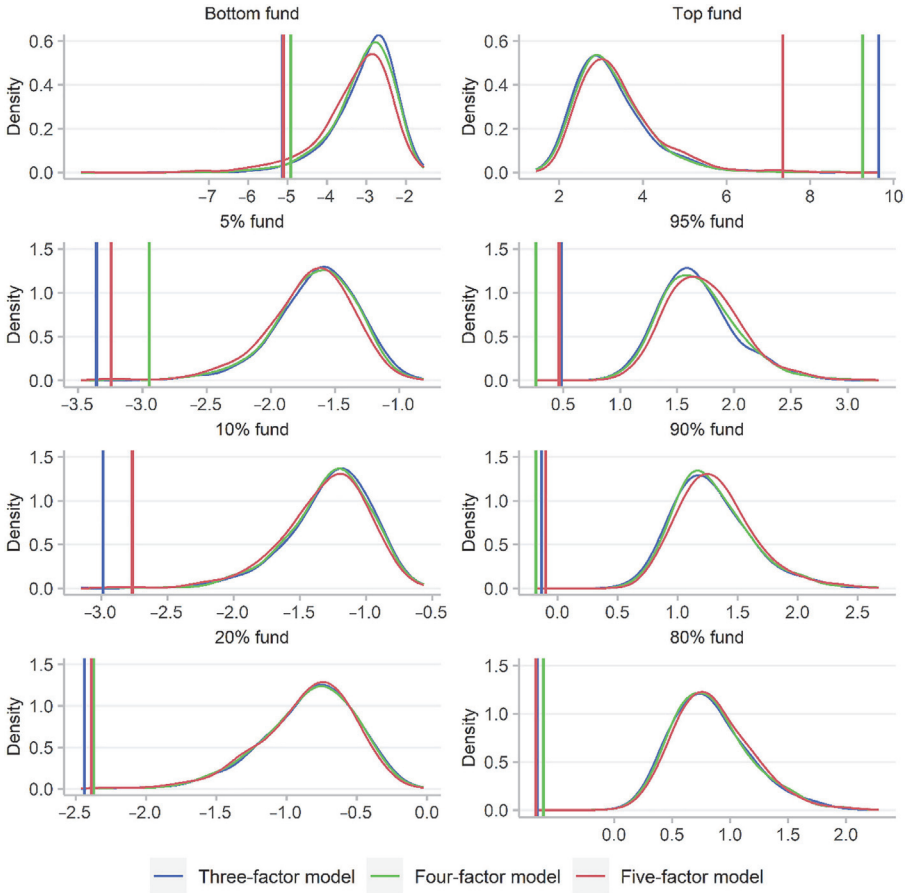


Figure 1.
Actual alpha *t*-statistics and bootstrapped alpha *t*-statistic distributions for individual funds at various percentile points in the cross section in the post-crisis period (May 2009–December 2019)

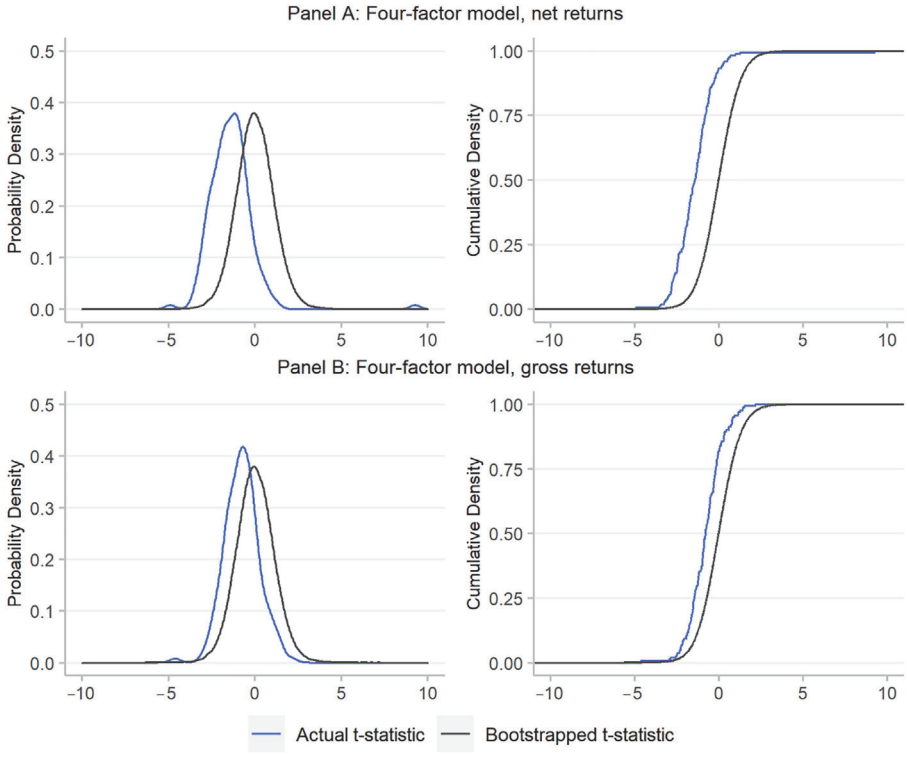
Note(s): Kernel Density (Gaussian) estimates plot the bootstrapped alpha *t*-statistic distributions. Vertical lines present the actual alpha *t*-statistics

higher than the majority of the probability mass of the simulated *t*-statistics, which clearly indicates that good skill is probably involved.

The left-side graphs in Figure 2 present the probability density function (PDF) of the real and bootstrapped *t*-statistics for funds at various points in the cross-sectional distribution in the period after the crisis, and the right-side graphs present the cumulative density function (CDF). Panel A corresponds to the four-factor alpha *t*-statistics using net returns and Panel B to the gross returns. The PDF graphs illustrate that the actual *t*-statistic distributions are negatively skewed, and the extreme left and right tails are also fatter than in the luck distribution. The actual *t*-statistics of the gross alphas are more highly concentrated around the median than the actual net alpha *t*-statistics are, but they are still negatively skewed. Figure 2 consequently confirms the results in Table 3 that the sample contains only one skilful fund and a large number of funds with poor skills.

The CDF graphs show the number of funds exceeding the corresponding simulated alpha *t*-statistics. We can distinguish the top performer in the extreme right tail where the actual *t*-statistic line is below the simulated line. However, the actual *t*-statistic line mostly lies above the simulated line, which confirms that the majority of the individual funds fail to deliver sufficiently large alpha to beat factor returns, even before fees.

The one skilful fund in our sample is team-managed. This may suggest that funds managed by a team tend to have the knowledge-based advantage to perform better than funds managed by individuals, which is consistent with Adams *et al.* (2018) and Patel and



Note(s): Panels A and B correspond to the alpha *t*-statistics using net and gross returns respectively. Kernel Density (Gaussian) estimates plot the Probability Density Functions

Figure 2. Probability Density Function and Cumulative Density Function of the actual and bootstrapped alpha *t*-statistic distributions using four-factor model in the post-crisis period (May 2009–December 2019)

Sarkissian (2017). It is incorporated in Hungary, which could indicate that Hungarian fund managers are superior to those in other countries, but as most of the funds in the sample are from Hungary it may simply be probability-driven. The fund with good skills does not seem to follow a certain investment style or possess significant fund flows, in contrast to what the previous literature has suggested (e.g. Cuthbertson *et al.*, 2008; Kosowski *et al.*, 2006; Song, 2020). The picture of the funds with poor skills is clearly mixed, so no clear inferences can be drawn. We could not investigate these aspects further as the data on investment objectives and on the characteristics of the fund managers are incomplete and missing for a large part of the sample. However, future studies should look more closely into these issues when a more complete dataset on CEE mutual funds becomes available.

Overall the results using multifactor models show that our sample of global equity funds in CEE mostly contains poorly performing funds. Our inferences about the large amount of poor skill at the extreme bottom are broadly consistent with the studies that use the cross-sectional bootstrapping methodology on US and UK data (e.g. Cuthbertson *et al.*, 2008; Fama and French, 2010; Huang *et al.*, 2020; Kosowski *et al.*, 2006; Song, 2020). In contrast to our findings though, those papers find bad luck rather than poor skill among the other funds with negative alpha. Furthermore, the share of truly skilful funds appears to be smaller in CEE than in the US or the UK This could indicate that there is a mismatch problem between the demand and the supply of skilful fund managers in the CEE region. The knowledge and skills of fund managers may be lagging behind the rapid growth in the region's financial markets and investment fund industry, so selecting a fund manager may have simply come down to selecting any fund manager rather than specifically selecting a skilful fund manager. It could however be premature to interpret these results purely as reflecting the skill of the fund manager, and it could mislead our conclusions. There may be other additional factors that lead poor skill to dominate among the funds in our sample.

One possibility might be that the characteristics of the mutual fund industry in CEE may combine unfavourably for fund managers. Our results using net returns may at least to some extent reflect the high costs of fund management in CEE, where they are about twice the European average [14]. Even so, poor skills still dominate the sample even after the fees are added back in. A second characteristic could be that the competitive advantage of being better at choosing local stocks (Banegas *et al.*, 2013; Coval and Moskowitz, 1999; Pool *et al.*, 2012) might be unlikely to emerge in globally invested fund portfolios, especially when most of the fund assets are channelled to markets outside CEE.

Another potential reason why poor skill dominates might arise from the use of multifactor models in our previous tests. In principle, these models show whether a fund manager is able to beat common risk factors like *HML*, *SMB*, *MOM*, *RMW*, and *CMA*, but there are some underlying problems to this approach. First, fund managers might be employed not to deliver multifactor returns but rather to beat a benchmark index (e.g. Berk and van Binsbergen, 2015). Second, Cremers *et al.* (2013) indicate that standard multifactor models are misleading when the performance of mutual fund managers is being evaluated, as they assign too much weight to factor returns. Consequently, they recommend measuring the performance relative to the benchmark index of the fund. We follow this perspective in the next section.

4.3 Performance relative to fund-specific benchmarks

We next examine the performance of our mutual fund sample relative to their benchmark indexes. This is done by comparing the excess return of each individual fund with the excess return of a fund-specific benchmark index denoted in the fund prospectus (*RBM*).

The cross-sectional regression averages of the individual funds are shown in Table 4. The average fund in our sample underperforms its benchmark after fees, by delivering a mean net alpha of −0.23% per month in the whole period (Panel A), and −0.20% per month for the

	Min α	Max α	Mean α	Mean β_{RBM-RF}
Panel A: Whole period 9.2005–2019				
Net returns	−2.13 (−2.51)	0.38 (0.97)	−0.23 (0.97)	0.79 (11.06)
Gross returns	−2.02 (−2.38)	0.61 (3.10)	−0.04 (0.88)	0.79 (11.06)
Panel B: Post-crisis period 5.2009–2019				
Net returns	−2.13 (−2.51)	0.68 (1.98)	−0.20 (0.99)	0.74 (10.68)
Gross returns	−2.02 (−2.38)	0.80 (2.35)	−0.01 (0.94)	0.74 (10.68)

Note(s): This table reports the minimums, maximums, and averages of cross-sectional regression results for individual mutual funds using benchmark regressions. Panels A and B represent the results for the whole period of 9.2005–2019 and for the post-crisis period of 5.2009–2019 respectively. For each individual fund, the market return is proxied by the return of a fund-specific benchmark index denoted in the fund prospectus (RBM). The *t*-statistics are estimated based on Newey–West heteroscedasticity and autocorrelation-adjusted standard errors and reported in parentheses. The average *t*-statistics are calculated based on absolute values

Table 4.
Regression results of individual funds relative to fund-specific benchmark indexes

period after the financial crisis (Panel B). The mean alpha from gross returns is close to zero in both periods. This suggests that the average global equity fund in CEE delivers gross returns at about the same level as the benchmark index but does not add additional value. This is different from the proposition of Berk and Green (2004), and the empirical findings in most of the previous literature, that benchmark-adjusted gross alphas are positive on average (e.g. Berk and van Binsbergen, 2015; Cremers *et al.*, 2022; Hunter *et al.*, 2014).

Tables 5 and 6 show the results when the skill of the fund manager is separated from luck for the whole period and for the post-crisis period respectively. The results that emerge are interesting next to the multifactor results in Tables 2 and 3 in Sections 4.1 and 4.2. We now see negative performance before fees only after the median in both periods (Panels B of Tables 5 and 6). Given that H0 is accepted for all the funds on the negative side of the performance scale, we now see evidence of bad luck rather than poor skill. Among the funds with positive alphas, the proportion of skilful funds is considerably higher (95th percentile and above) than it is in the multifactor model results in Sections 4.1 and 4.2. This means about 5% of the mutual funds in our sample have the skill to beat their benchmark indexes. The financial crisis does not seem to have affected our inferences, as the results for the full sample period in Table 5 are fairly similar to those for after the crisis in Table 6. In that sense, our findings do not support the proposition in Glode (2011) that fund managers outperform during periods of stress.

Panels A of Tables 5 and 6 give some insights into the scope of skill among fund managers in CEE. Quite surprisingly, our results against the fund-specific benchmark indexes, net of fees, are fairly similar to those we found with the multifactor models in Sections 4.1 and 4.2. Only the top fund possesses a sufficient level of skill to cover fund fees, as was found using the multifactor models. The skill of all the other fund managers is absorbed by the fees charged. In contrast, all the funds that were unlucky before fees turned into funds with poor skill after fees, except for the bottom 1% of the funds. These changes suggest two points. First, mutual funds in CEE may charge fees that are too high given the abnormal performance they add. This is especially so for the funds that are already underperforming their benchmarks before fees. Second, while some mutual fund managers in CEE do possess skill, they may not have enough skill to cover their fund fees.

The contradiction between the fees charged and the low performance net of fees might be the consequence of weak competition in the mutual fund industry in CEE. CEE is an emerging market and the demand for mutual funds has been growing rapidly there. At the same time, the number of funds in the region is small, which has given the funds the upper hand in setting prices. This may have raised prices too high so that global equity fund investors in

Table 5.
Bootstrap results relative to fund-specific benchmark indexes for the whole period (September 2005–December 2019)

		Bottom	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%	Top
Panel A: Results using net returns																
Benchmark regressions	*t*-statistic	−2.81	−2.62	−2.10	−1.88	−1.50	−1.15	−0.95	−0.78	−0.58	−0.27	0.08	0.49	0.67	1.40	5.99
	Bootstrapped *p*-value	0.54	0.16	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1.00	1.00	1.00	1.00	0.01
Panel B: Results using gross returns																
Benchmark regressions	*t*-statistic	−2.38	−2.06	−1.56	−1.21	−0.81	−0.54	−0.28	−0.03	0.28	0.53	0.93	1.42	2.09	2.48	12.02
	Bootstrapped *p*-value	0.85	0.74	0.60	0.67	0.56	0.42	0.40	0.41	0.42	0.51	0.32	0.29	0.04	0.39	<0.01

Note(s): This table reports the real alpha *t*-statistics ("*t*-statistic") and the cross-sectionally bootstrapped *p*-values ("Bootstrapped *p*-value") using benchmark regressions for the whole period of 9.2005–2019. For each individual fund, the market return is proxied by the return of a fund-specific benchmark index denoted in the fund prospectus (RBM). Panels A and B represent the results using net and gross returns respectively. The *t*-statistics are based on Newey–West heteroscedasticity and autocorrelation-adjusted standard errors

Table 6.
Bootstrap results relative to fund-specific benchmark indexes for the post-crisis period (May 2009–December 2019)

		Bottom	1%	5%	10%	20%	30%	40%	50%	60%	70%	80%	90%	95%	99%	Top
Panel A: Results using net returns																
Benchmark	*t*-statistic	−2.72	−2.51	−2.20	−1.89	−1.54	−1.24	−0.86	−0.68	−0.46	−0.18	0.15	0.64	1.02	1.98	5.99
regressions	Bootstrapped *p*-value	0.57	0.19	0.05	0.04	0.03	0.02	0.04	0.03	0.01	<0.01	0.99	0.99	0.99	0.76	<0.01
Panel B: Results using gross returns																
Benchmark	*t*-statistic	−2.38	−1.99	−1.57	−1.23	−0.78	−0.45	−0.06	0.07	0.33	0.71	1.01	1.53	2.27	3.16	12.02
regressions	Bootstrapped *p*-value	0.81	0.70	0.50	0.45	0.50	0.53	0.69	0.43	0.39	0.25	0.25	0.18	0.04	0.04	<0.01

Note(s): This table reports the real alpha *t*-statistics ("*t*-statistic") and the cross-sectionally bootstrapped *p*-values ("Bootstrapped *p*-value") using benchmark regressions for the post-crisis period of 5.2009–2019. For each individual fund, the market return is proxied by the return of a fund-specific benchmark index denoted in the fund prospectus (RBM). Panels A and B represent the results using net and gross returns respectively. The *t*-statistics are based on Newey–West heteroscedasticity and autocorrelation-adjusted standard errors

CEE consistently lose money on their mutual fund investments. This makes market-tracking passive indexes a better choice for investors who want to maximise their risk-adjusted returns at the lowest possible cost.

4.4 Economic value-added

We next examine the value added by the global equity fund managers in our sample. Here we follow the lead of Berk and van Binsbergen (2015), and calculate the economic value added as the product of gross alphas that arise from the benchmark regressions in Section 4.3 and fund size. We also briefly investigate the dichotomy between the value added by small funds and by large funds, as was suggested in the previous literature (e.g. Berk and Green, 2004; Chen *et al.*, 2004; Song, 2020).

Figure 3 presents the cumulative economic value destroyed by funds with negative alpha, the value added by funds with positive alpha, and the number of funds across various alpha performance levels by fund size groups. Panel A presents the results for the whole period and Panel B shows those for the post-crisis period. We divide the funds into size groups by quintiles. The first quintile represents small funds, quintiles two to four are medium-sized funds, and the fifth quintile is for large funds.

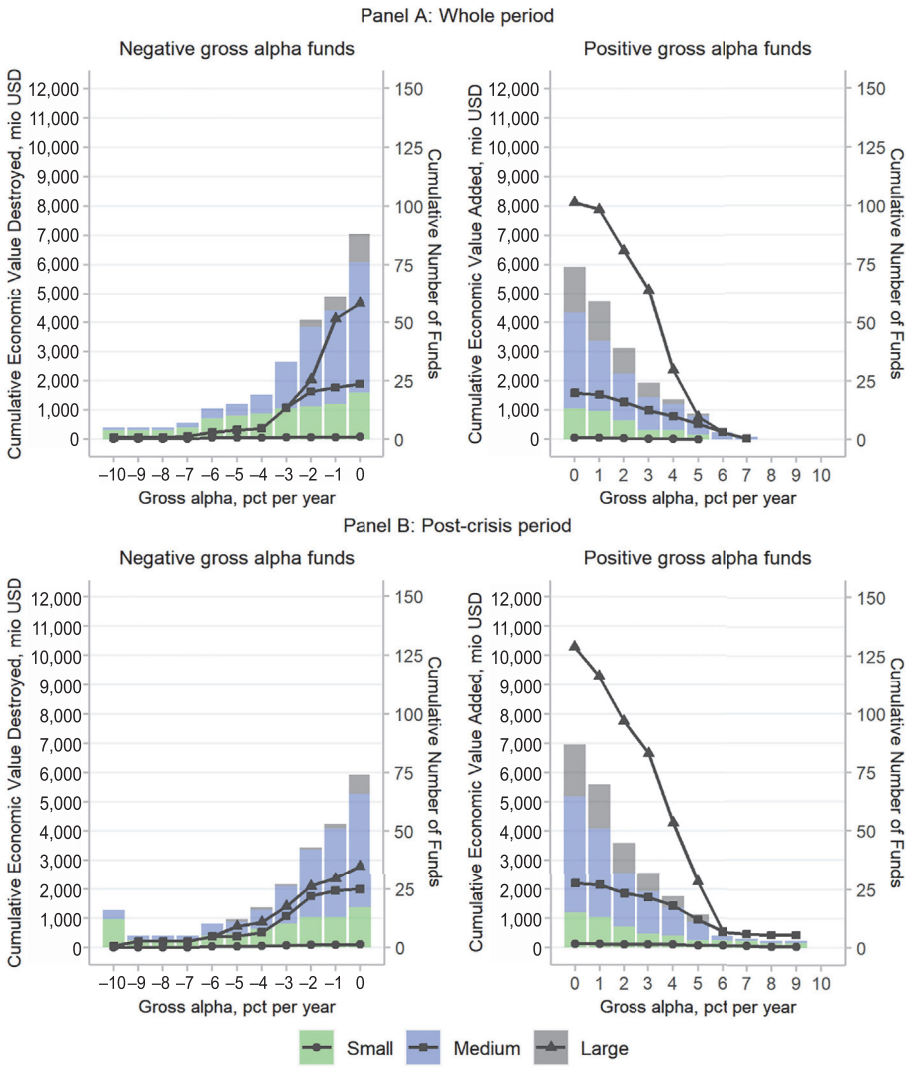
Gross of fees, underperforming funds in our sample destroy about 4.7 billion US dollars per year, but outperforming funds add considerably more value at about 8.1 billion US dollars per year. This means the yearly value added by the whole sample of global equity funds in CEE is around 3.5 billion US dollars in the whole period. When we remove the effect of the financial crisis, the yearly value added is more than twice as large at about 7.5 billion US dollars. This is mainly because there are proportionally more funds with positive gross alphas, and the extreme values of the positive alphas are much greater.

Our results across size groups are quite interesting. While small and medium-sized funds add about as much as they destroy, large funds drive the value added upwards substantially. The effect is even more pronounced after the crisis, as the net value added by large funds is about 3.5 billion US dollars greater than that added in the whole period. Another noteworthy point is the distribution of funds across alpha levels. The large funds are concentrated around medium performance levels, as they deliver alphas of between −5 and 5% per year. In comparison, the economic impact of the small funds is only marginal, but they provide the majority of the extreme alpha values. It can also be seen that the performance of small funds is greatly impacted by the periods of stress, as they only appear to provide extreme positive alphas after the crisis. This suggests that small actively managed funds in CEE are more suitable for investors with a high level of risk appetite under stable or growing market conditions. Large actively managed funds are a better choice for investors who are less risk tolerant at any stage of the market cycle.

Interestingly, our findings on the value added by small and large funds contradict the conclusions in the previous literature, which has found worse performance in larger funds (e.g. Chen *et al.*, 2004; Zhu, 2018). This could be because the funds in CEE are still small compared to those in other regions, so they have not reached the point of being too big to exceed the optimal amounts manager can actively manage, as suggested in Song (2020) and in Zhu (2018). Furthermore, the lack of economies of scale for small funds could similarly arise because many of the small funds in CEE are sub-scale. Collins and Mack (1997) suggested for example that some small funds fail to attract sufficient inflows and subsequently manage assets that are too small to be cost-efficient. Given our investigation into fund size is only brief, this question is worth more detailed attention in future studies.

5. Sensitivity tests

To check the stability of our results we next carry out sensitivity tests for the post-crisis period. To do this we change the minimum survival requirement (1), increase the number of



Note(s): Panels A and B present the results for the whole period and for the post-crisis period respectively. The economic value added is calculated as the product of gross alphas that arise from benchmark regressions (Section 4.3) and fund size. The values added by individual funds are summed within a certain alpha performance level by fund size group and then cumulated. Lines present the cumulative economic value added/destroyed, columns present the cumulative number of funds. Both, lines and columns are stacked

Figure 3.
Cumulative economic value destroyed by funds with negative alpha, the value added by funds with positive alpha, and the number of funds across various alpha performance levels by fund size groups, post-crisis period (May 2009–December 2019)

bootstrap repetitions (2), and check for possible home bias (3). The specific results are available from the author upon request [15].

5.1 Survival bias

In the baseline models, we tested funds that had at least 24 observations so that we could avoid having a very short series of data on returns. However, these results might suffer from some degree of survival bias, as funds with a very short lifespan may have more extreme returns. We repeat the bootstrapping process again after changing the minimum requirement for survival to 18, 30 or 36 months, following other papers that use the residual bootstrapping technique like Cuthbertson *et al.* (2008), Fama and French (2010), and Kosowski *et al.* (2006).

When we lower the requirement to 18 months, the number of skilful funds is slightly higher, both gross and net of fees. However, increasing the requirement for observations to 30 or 36 months, leads us to detect less skill, because increasing the minimum requirement cuts off the extreme top tail of our sample. Only one skilful fund had enough data on returns to be included in the tests with a minimum of 30 or 36 months of survival after the crisis. Other skilful funds had a short overall lifespan, did not survive long after the financial crisis, or are relatively young. This might be because very successful funds are more attractive targets to be taken over or merged, and so they do not exist independently for very long, as shown by Blake and Timmermann (1998).

Despite some variation in the results, the broad qualitative inferences about the individual CEE global equity funds do not in general change even in the extreme tails, like in previous studies using bootstrap (e.g. Cuthbertson *et al.*, 2008; Fama and French, 2010; Kosowski *et al.*, 2006).

5.2 Number of bootstrap repetitions

The number of bootstrap repetitions used might affect the inferences, as we estimate the probabilities from simulations that involve randomness (Andrews and Buchinsky, 2000; Hall, 1986). This means that the number of ways the simulated alphas and alpha *t*-statistics can occur is limited by the number of bootstrap resamples.

We therefore perform a sensitivity test where we increase the number of bootstrap repetitions to 10,000, instead of 1,000 as used in the baseline tests. However, our baseline results and inferences in Section 4 remain virtually unchanged.

5.3 Home bias

Even though we study equity funds with global portfolios, they still might be subject to some home bias. This leads us to perform a sensitivity test where we adjust the baseline risk-free rate proxied by the US one-month T-bill with country risk premiums (CRP), matched with the country where the fund is incorporated.

As expected, we now see more evidence of poor skill, both gross and net of fees, as the excess returns of the funds are lower. Interestingly however, the number of skilful funds remains robust. This may indicate that home biased funds tend to outperform medium decile funds, as found by Hiraki and Liu (2021). Overall, these findings confirm our baseline results. Even if there is some home bias in the portfolios of global equity funds in CEE, negative performers dominate the sample and there are only a few skilful funds.

6. Conclusion

This paper is the first to examine the performance of individual funds in Central and Eastern Europe (CEE) while testing for the skill of the fund managers. We use a cross-sectional bootstrap methodology to differentiate between skill and luck in individual global equity funds in CEE. We study the monthly net and gross returns of 175 equity funds with globally invested portfolios from September 2005 to December 2019.

Using multifactor models, we find only one fund with genuine skill even after we remove the severe negative effect of the 2008 financial crisis. A majority of the individual funds fail to deliver

sufficiently large alpha to beat factor returns, both net and gross of fees. Intriguingly, most of the negative alphas are delivered not by bad luck, but by poor skills, which means we detect less skill than do the studies that use the cross-sectional bootstrapping methodology on US and UK data (e.g. Cuthbertson *et al.*, 2008; Fama and French, 2010; Huang *et al.*, 2020; Kosowski *et al.*, 2006; Song, 2020). This may indicate that there is a mismatch problem between the demand and supply of skilful fund managers in CEE. The knowledge and skills of fund managers may be lagging behind the rapid growth in the region's investment fund industry.

In contrast, we demonstrate that about 5% of our mutual fund sample have the skill to beat their benchmark indexes denoted in fund prospectuses, gross of fees. We then show that this skill is absorbed by the fund management fees, with the sole exception of the top fund. Our results remain qualitatively stable when we control for survival bias and home bias, and we alter the number of bootstrap repetitions.

Our paper consequently implies the following. First, mutual funds in CEE may charge excessively high fees for the abnormal performance they add. Second, while some mutual fund managers in CEE do possess skill, they may not have enough skill to cover their fund fees. It might be that a combination of weak competition and high demand for mutual funds in CEE has led to fund fees being too high. Third, global equity fund investors in CEE consistently lose money on their mutual fund investments.

Economically speaking, our whole mutual fund sample adds considerably more value than it destroys, gross of fees. We also demonstrate that it is the fund size that matters. Large funds have the greatest economic impact as they drive the value added upwards substantially. While the total value added by all the small funds is close to zero, they offer more extreme positive and negative abnormal returns. Our results suggest that investors with a high level of risk appetite might prefer small actively managed funds in CEE when market conditions are stable or growing, while large actively managed funds in CEE might be a better choice for investors who are less risk tolerant at any stage of the market cycle. Nevertheless, our paper provides evidence that market-tracking passive indexes are the most reliable and the safest choice for investors who want to maximise their risk-adjusted returns at the lowest possible cost. This is so because majority of global equity funds in CEE do not have enough skill to outperform the market net of fees.

While this is the first study to differentiate between skill and luck in mutual fund returns in CEE, it also leaves room for future studies. It would be useful to extend our work and examine the effect of the specific characteristics of funds and fund managers, such as their investment styles, fund flows, fund management structure, and the education of fund managers. The dichotomy between fund size and value added also deserves further attention. It would also be interesting to repeat this study in the future when there is greater financial literacy and more experience of fund management in the region.

Acknowledgments

The author wishes to thank Estonian Economic Association, Baltic Economic Association, Kalle Ahi (Tallinn University of Technology), Dr. Karin Jõeveer (Tallinn University of Technology), Prof. Matti Keloharju (Aalto University), Prof. Tom Kirchmaier (London School of Economics and Copenhagen Business School), Dr. Laivi Laidroo (Tallinn University of Technology), Prof. Kadri Männasoo (Tallinn University of Technology), Dr. Lars Christian Ohnemus (Copenhagen Business School), Prof. Karsten Staehr (Bank of Estonia and Tallinn University of Technology), Dr. Anita Suurlaht (Bank of Estonia), Prof. Steen Thomsen (Copenhagen Business School); the participants of departmental seminars at Tallinn University of Technology and Copenhagen Business School (CBS), for providing support, helpful comments and suggestions. Part of this research was conducted while the author was a visiting scholar at CBS.

Funding: This work was supported by the Estonian Ministry of Education and Research, project "Efficiency in the Financial Sector in the Light of a Changing Regulatory Environment", Grant/Award Number: B57; by the European Regional Development Fund, Tallinn University of Technology ASTRA project, TTÜ Development Program 2016-2022, Grant/Award Number: 2014-2020.4.01.16-0032; by the European Union's Horizon 2020 Research and Innovation Programme, Grant/Award Number: 952574; by the European Economic Area (EEA) Financial Mechanism 2014-2021 Baltic Research Programme, Grant/Award Number: S-BMT-21-8 (LT08-2-LMT-K-01-073); and by the Education and Youth Board of Estonia, Dora Plus Programme, Grant/Award Number: T1.1 and T1.2. This paper represents the work conducted in connection with these grants. The funding providers had no role in the research process from study design to submission.

Declarations of interest: None.

Notes

1. The data for stock market capitalisation and stock market capitalisation to GDP (%) are from the World Bank database.
2. The data for investment funds are from the Quarterly Statistical Reports of the European Fund and Asset Management Association (EFAMA). Available at: https://www.efama.org/sites/default/files/files/Statistics/08%20Quarterly%20Statistical%20Release%20Q4%202020.pdf.
3. From Eurostat data (TIPSBP19) and the report "Analysis of developments in EU capital flows in the global context." Bruegel study. 2019. Available at https://op.europa.eu/en/publication-detail/-/publication/95c4ca63-4c83-11ea-b8b7-01aa75ed71a1.
4. European Fund and Asset Management Association (EFAMA) data show that the average fund size (total net assets) in the CEE region in 2019 was around USD 56 million. In comparison, the same figure was around USD 315.8 million for the whole of Europe, and USD 529.6 for the UK. Available at: https://www.efama.org/statistics/SitePages/European%20Quarterly%20Statistical%20Release.aspx.
5. Based on Standard & Poor's Ratings Services Global Financial Literacy Survey (S&P Global FinLit Survey), and Klapper and Lusardi (2020).
6. These countries are Bulgaria, Croatia, The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia.
7. Monthly fund-level net returns at the level of the share class are weighted by the proportion of the total net assets of the fund that were in each share class at the beginning of each month.
8. There were 21 funds from The Czech Republic, 4 from Estonia, 55 from Hungary, 4 from Latvia, 8 from Lithuania, 45 from Poland, 3 from Slovakia, and 35 from Slovenia. There were no data for such funds from Bulgaria, Croatia or Romania.
9. Available at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html#Developed.
10. The results were relatively stable when the MSCI World Index was used as a market proxy in a sensitivity test (results available upon request). The risk-free rate was adjusted with the country risk premium (CRP) in a sensitivity test to check for possible home bias (Section 5.3).
11. The majority of the benchmarks are global equity indexes, most commonly the FTSE All World, MSCI ACWI, and MSCI World. Other less common benchmarks include the S&P500 INDEX (SPX) and Russell 2000 (RUTTR), and also MSCI Emerging Markets and MSCI Europe.
12. The equally weighted (EW) portfolio is composed as a portfolio where the same weight is assigned to all the individual funds in the sample.
13. For a positive alpha fund located at a specific point in the estimated cross-sectional alpha distribution $(\alpha_i > 0)$ $H0: \max_n(\alpha_1, \cdots, \alpha_n) \leq 0$. For a negative alpha fund located at a specific point in the estimated cross-sectional alpha distribution $(\alpha_i < 0)$ $H0: \max_n(\alpha_1, \cdots, \alpha_n) \geq 0$.

14. Based on the 2019 Annual Statistical Report on the performance and costs of retail investment products in the EU of the European Securities and Markets Authority (ESMA); and on data from Thomson Reuters Eikon.

15. The results using three, four, and five-factor models, and for the whole period (September 2005–December 2019) are also available upon request.

References

Adams, J.C., Nishikawa, T. and Rao, R.P. (2018), "Mutual fund performance, management teams, and boards", *Journal of Banking and Finance*, Vol. 92, pp. 358-368.

Andrews, D.W. and Buchinsky, M. (2000), "A three-step method for choosing the number of bootstrap repetitions", *Econometrica*, Vol. 68 No. 1, pp. 23-51.

Banegas, A., Gillen, B., Timmermann, A. and Wermers, R. (2013), "The cross section of conditional mutual fund performance in European stock markets", *Journal of Financial Economics*, Vol. 108 No. 3, pp. 699-726.

Barras, L., Scaillet, O. and Wermers, R. (2010), "False discoveries in mutual fund performance: measuring luck in estimated alphas", *The Journal of Finance*, Vol. 65 No. 1, pp. 179-216.

Bartholdy, J. and Peare, P. (2005), "Estimation of expected return: CAPM vs Fama and French", *International Review of Financial Analysis*, Vol. 14 No. 4, pp. 407-427.

Berk, J.B. and Green, R.C. (2004), "Mutual fund flows and performance in rational markets", *Journal of Political Economy*, Vol. 112 No. 6, pp. 1269-1295.

Berk, J.B. and van Binsbergen, J.H. (2015), "Measuring skill in the mutual fund industry", *Journal of Financial Economics*, Vol. 118 No. 1, pp. 1-20.

Białkowski, J. and Otten, R. (2011), "Emerging market mutual fund performance: evidence for Poland", *The North American Journal of Economics and Finance*, Vol. 22 No. 2, pp. 118-130.

Blake, D. and Timmermann, A. (1998), "Mutual fund performance: evidence from the UK", *Review of Finance*, Vol. 2 No. 1, pp. 57-77.

Bóta, G. and Ormos, M. (2016), "Is there a local advantage for mutual funds that invest in Eastern Europe?", *Eastern European Economics*, Vol. 54 No. 1, pp. 23-48.

Bóta, G. and Ormos, M. (2017), "Determinants of the performance of investment funds managed in Hungary", *Economic Research-Ekonomska Istraživanja*, Vol. 30 No. 1, pp. 140-153.

Brown, S.J., Goetzmann, W., Ibbotson, R.G. and Ross, S.A. (1992), "Survivorship bias in performance studies", *The Review of Financial Studies*, Vol. 5 No. 4, pp. 553-580.

Carhart, M.M. (1997), "On persistence in mutual fund performance", *The Journal of Finance*, Vol. 52 No. 1, pp. 57-82.

Chen, J., Hong, H., Huang, M. and Kubik, J.D. (2004), "Does fund size erode mutual fund performance? The role of liquidity and organization", *American Economic Review*, Vol. 94 No. 5, pp. 1276-1302.

Collins, S. and Mack, P. (1997), "The optimal amount of assets under management in the mutual fund industry", *Financial Analysts Journal*, Vol. 53 No. 5, pp. 67-73.

Coval, J.D. and Moskowitz, T.J. (1999), "Home bias at home: local equity preference in domestic portfolios", *The Journal of Finance*, Vol. 54 No. 6, pp. 2045-2073.

Cremers, M., Petajisto, A. and Zitzewitz, E. (2013), "Should benchmark indices have alpha? Revisiting performance evaluation", *Critical Finance Review*, Vol. 2 No. 1, pp. 1-48.

Cremers, K.M., Fulkerson, J.A. and Riley, T.B. (2022), "Benchmark discrepancies and mutual fund performance evaluation", *Journal of Financial and Quantitative Analysis*, Vol. 57 No. 2, pp. 543-571.

Cuthbertson, K., Nitzsche, D. and O'Sullivan, N. (2008), "UK mutual fund performance: skill or luck?", *Journal of Empirical Finance*, Vol. 15 No. 4, pp. 613-634.

Fama, E.F. and French, K.R. (1993), "Common risk factors in the returns on stocks and bonds", *Journal of Financial Economics*, Vol. 33, pp. 3-56.

Fama, E.F. and French, K.R. (2010), "Luck versus skill in the cross-section of mutual fund returns", *The Journal of Finance*, Vol. 65 No. 5, pp. 1915-1947.

Fama, E.F. and French, K.R. (2015), "A five-factor asset pricing model", *Journal of Financial Economics*, Vol. 116 No. 1, pp. 1-22.

Feldman, D., Saxena, K. and Xu, J. (2020), "Is the active fund management industry concentrated enough?", *Journal of Financial Economics*, Vol. 136 No. 1, pp. 23-43.

Filip, D. (2014), "Survivorship bias and performance of mutual funds in Hungary", *Periodica Polytechnica-Social and Management Sciences*, Vol. 22 No. 1, pp. 47-56.

Filip, D. (2017), "The return variability and dispersion: evidence from mutual funds in post-transition countries", *Financial Assets and Investing*, Vol. 8 No. 1, pp. 19-39.

Fortin, R. and Michelson, S. (2002), "Indexing versus active mutual fund management", *Journal of Financial Planning*, Vol. 15 No. 9, pp. 82-95.

Glode, V. (2011), "Why mutual funds 'underperform'", *Journal of Financial Economics*, Vol. 99 No. 3, pp. 546-559.

Guercio, D.D. and Reuter, J. (2014), "Mutual fund performance and the incentive to generate alpha", *The Journal of Finance*, Vol. 69 No. 4, pp. 1673-1704.

Hall, P. (1986), "On the number of bootstrap simulations required to construct a confidence interval", *The Annals of Statistics*, Vol. 14 No. 4, pp. 1453-1462.

Harvey, C.R. and Liu, Y. (2020), "False (and missed) discoveries in financial economics", *The Journal of Finance*, Vol. 75 No. 5, pp. 2503-2553.

Hiraki, T. and Liu, M. (2021), "Do global equity mutual funds exhibit home bias?", *Journal of Behavioral and Experimental Finance*, Vol. 31, p. 100508.

Huang, R., Asteriou, D. and Pouliot, W. (2020), "A reappraisal of luck versus skill in the cross-section of mutual fund returns", *Journal of Economic Behavior and Organization*, Vol. 176, pp. 166-187.

Hunter, D., Kandel, E., Kandel, S. and Wermers, R. (2014), "Mutual fund performance evaluation with active peer benchmarks", *Journal of Financial Economics*, Vol. 112 No. 1, pp. 1-29.

In, F. and Kim, S. (2007), "A note on the relationship between Fama–French risk factors and innovations of ICAPM state variables", *Finance Research Letters*, Vol. 4 No. 3, pp. 165-171.

Jensen, M.C. (1968), "The performance of mutual funds in the period 1945-1964", *The Journal of Finance*, Vol. 23 No. 2, pp. 389-416.

Kacperczyk, M., Sialm, C. and Zheng, L. (2008), "Unobserved actions of mutual funds", *The Review of Financial Studies*, Vol. 21 No. 6, pp. 2379-2416.

Klapper, L. and Lusardi, A. (2020), "Financial literacy and financial resilience: evidence from around the world", *Financial Management*, Vol. 49 No. 3, pp. 589-614.

Kosowski, R., Timmermann, A., Wermers, R. and White, H. (2006), "Can mutual fund 'stars' really pick stocks? New evidence from a bootstrap analysis", *The Journal of Finance*, Vol. 61 No. 6, pp. 2551-2595.

Lemeshko, O. and Rejnuš, O. (2015), "Performance evaluation of equity mutual funds in countries with emerging economies: evidence from BRIC, CEE, sea and MENA regions", *Procedia Economics and Finance*, Vol. 30, pp. 476-486.

Malkiel, B.G. (1995), "Returns from investing in equity mutual funds 1971 to 1991", *The Journal of Finance*, Vol. 50 No. 2, pp. 549-572.

Malkiel, B.G. (2013), "Asset management fees and the growth of finance", *Journal of Economic Perspectives*, Vol. 27 No. 2, pp. 97-108.

Pástor, Ľ. and Vorsatz, M.B. (2020), "Mutual fund performance and flows during the COVID-19 crisis", *The Review of Asset Pricing Studies*, Vol. 10 No. 4, pp. 791-833.

Pástor, Ľ., Stambaugh, R.F. and Taylor, L.A. (2015), "Scale and skill in active management", *Journal of Financial Economics*, Vol. 116 No. 1, pp. 23-45.

Patel, S. and Sarkissian, S. (2017), "To group or not to group? Evidence from mutual fund databases", *Journal of Financial and Quantitative Analysis*, Vol. 52 No. 5, pp. 1989-2021.

Petajisto, A. (2013), "Active share and mutual fund performance", *Financial Analysts Journal*, Vol. 69 No. 4, pp. 73-93.

Pool, V.K., Stoffman, N. and Yonker, S.E. (2012), "No place like home: familiarity in mutual fund manager portfolio choice", *The Review of Financial Studies*, Vol. 25 No. 8, pp. 2563-2599.

Sharma, P. and Paul, S. (2015), "Testing the skill of mutual fund managers: evidence from India", *Managerial Finance*, Vol. 41 No. 8, pp. 806-824.

Song, Y. (2020), "The mismatch between mutual fund scale and skill", *The Journal of Finance*, Vol. 75 No. 5, pp. 2555-2589.

Wermers, R. (2000), "Mutual fund performance: an empirical decomposition into stock-picking talent, style, transactions costs, and expenses", *The Journal of Finance*, Vol. 55 No. 4, pp. 1655-1695.

Zhu, M. (2018), "Informative fund size, managerial skill, and investor rationality", *Journal of Financial Economics*, Vol. 130 No. 1, pp. 114-134.

Corresponding author
Triinu Tapver can be contacted at: triinu.tapver@taltech.ee

Curriculum vitae

Personal data

Name:	Triinu Tapver
Date of birth:	09.08.1993
Place of birth:	Tallinn, Estonia
Citizenship:	Estonia

Contact data

E-mail:	triinu.tapver@gmail.com

Education

Period	Educational institution	Field, degree
2017–(2022)	Tallinn University of Technology	Economics and Finance, PhD
2015–2017	Tallinn University of Technology	Finance and Accounting, main speciality finance, MA (cum laude)
2012–2015	Tallinn University of Technology	Public Administration, BA (cum laude)

Language competence

Language	Level
Estonian	Native
English	Fluent
Russian	Average
German	Basic skills

Special courses

Period	Course	Lecturer, Educational institution
08.2022	Structural Econometrics	Prof. O. Toivanen (Aalto University)
10.2021	Bayesian Statistics	Prof. Ü. Maiväli and T. Päll, PhD (University of Tartu)
08.2021	Machine Learning	Prof. A. Strittmatter(CREST)
06.2020	Forecasting with DSGE Models	Prof. M. Rubaszek (SGH Warsaw School of Economics)
11.2019	Selected Topics in Panel Data Econometrics	A. Võrk (University of Tartu)
05.2019	Econometric Modeling in R (basic course)	I. Seppo (University of Tartu)
11.2018	Long Panel Data Models	Prof. T. Malinen (University of Helsinki)
10.2018	Econometric Modeling in R (advanced course)	A. Võrk (University of Tartu)
09.2018	Structural Equation Modeling	Associate Prof. L. Littvay (Central European University)
07.2018	Introduction to Structural Equation Modeling using M plus	M. Miočević, PhD; Prof. E. Hamaker; K. Lek (Utrecht University)

Professional employment

Period	Organisation, position
2017–…	Tallinn University of Technology, Department of Economics and Finance, Early-Stage Researcher
01.–03.2020	Copenhagen Business School, Center for Corporate Governance, Visiting Researcher
2016–2018	Swedbank AS, Compliance Officer – Depositary Services

Publications

Tapver, T. (2022). Luck and skill in the performance of global equity funds in Central and Eastern Europe. *Managerial Finance*, ahead-of-print. DOI: https://doi.org/10.1108/MF-01-2022-0051 (ETIS 1.1)

Tapver, T., Laidroo, L., & Gurvitš-Suits, N. A. (2020). Banks' CSR reporting–Do women have a say? *Corporate Governance: The International Journal of Business in Society*, 20(4), 639-651. DOI: https://doi.org/10.1108/CG-11-2019-0338 (ETIS 1.1)

Tapver, T. (2020). Corporate Governance as a Corporate Social Responsibility Reporting Determinant. In *Eurasian Economic Perspectives* (pp. 113-128). Springer, Cham. DOI: https://doi.org/10.1007/978-3-030-48531-3_8 (ETIS 3.1)

Tapver, T. (2019). CSR reporting in banks: does the composition of the board of directors matter. *Quantitative Finance and Economics*, 3(2), 286-314. DOI: https://doi.org/10.3934/QFE.2019.2.286 (ETIS 1.1)

Honours and awards

2022	Eesti Pank research prize in memory of Urmas Sepp in the doctoral category for the research paper "Luck and skill in the performance of global equity funds in Central and Eastern Europe"
2022	Best PhD Student Paper Award by Baltic Economic Association (BEA) for the research paper "Luck and skill in the performance of global equity funds in Central and Eastern Europe"
2022	Dora Plus T1.1 mobility scholarship for presentation of the article "Luck and skill in the performance of global equity funds in Central and Eastern Europe" at the 4th Baltic Economic Conference, Kaunas, Lithuania on 27-28 June 2022
2021	Vello Vensel Doctoral Research Prize by Estonian Economic Association (EMS) for the research paper "Luck and skill in the performance of global equity funds in Central and Eastern Europe"
2021	Finalist at the contest "Science in 3 minutes", Estonian Academy of Sciences
2020	Dora Plus T1.2 mobility scholarship for doing individual research work in Copenhagen Business School as visiting researcher during January–March 2020
2018	Rein Otsason Scholarship for young outstanding Estonian economics student, Rein Otsason Foundation
2017	Best Master Thesis Award by Swedbank AS

Additional information

06.2022	4th Baltic Economic Conference, Session Chair
10.20–01.2021	CFA Institute, Faculty Advisor and Team Lead

Elulookirjeldus

Isikuandmed

Nimi:	Triinu Tapver
Sünniaeg:	09.08.1993
Sünnikoht:	Tallinn, Eesti
Kodakondsus:	Eesti

Kontaktandmed

E-post:	triinu.tapver@gmail.com

Hariduskäik

Periood	Haridusasutus	Eriala, kraad
2017–(2022)	Tallinna Tehnikaülikool	majandusteadus ja rahandus, PhD
2015–2017	Tallinna Tehnikaülikool	ärirahandus ja majandusarvestus, peaeriala ärirahandus, MA (cum laude)
2012–2015	Tallinna Tehnikaülikool	avalik haldus, BA (cum laude)

Keelteoskus

Keel	Tase
Eesti keel	emakeel
Inglise keel	kõrgtase
Vene keel	kesktase
Saksa keel	algtase

Täiendusõpe

Periood	Koolitus	Õppejõud, haridusasutus
08.2022	Structural Econometrics	Prof. O. Toivanen (Aalto University)
10.2021	Bayesian Statistics	Prof. Ü. Maiväli and T. Päll, PhD (Tartu Ülikool)
08.2021	Machine Learning	Prof. A. Strittmatter (CREST)
06.2020	Forecasting with DSGE Models	Prof. M. Rubaszek (SGH Warsaw School of Economics)
11.2019	Selected Topics in Panel Data Econometrics	A. Võrk (Tartu Ülikool)
05.2019	Econometric Modeling in R (basic course)	I. Seppo (Tartu Ülikool)
11.2018	Long Panel Data Models	Prof. T. Malinen (University of Helsinki)
10.2018	Econometric Modeling in R (advanced course)	A. Võrk (Tartu Ülikool)
09.2018	Structural Equation Modeling	Associate Prof. L. Littvay (Central European University)
07.2018	Introduction to Structural Equation Modeling using M plus	M. Miočević, PhD; Prof. E. Hamaker; K. Lek (Utrecht University)

Teenistuskäik

Periood	Asutus, ametikoht
2017–…	Tallinna Tehnikaülikool, Majandusanalüüsi ja rahanduse instituut, doktorant-nooremteadur
01.–03.2020	Copenhagen Business School, Center for Corporate Governance, külalisuurija
2016–2018	Swedbank AS, vastavuskontrolli spetsialist depoopangas

Publikatsioonid

Tapver, T. (2022). Luck and skill in the performance of global equity funds in Central and Eastern Europe. *Managerial Finance*, ahead-of-print. DOI: https://doi.org/10.1108/MF-01-2022-0051 (ETIS 1.1)

Tapver, T., Laidroo, L., & Gurvitš-Suits, N. A. (2020). Banks' CSR reporting–Do women have a say? *Corporate Governance: The International Journal of Business in Society*, 20(4), 639-651. DOI: https://doi.org/10.1108/CG-11-2019-0338 (ETIS 1.1)

Tapver, T. (2020). Corporate Governance as a Corporate Social Responsibility Reporting Determinant. In *Eurasian Economic Perspectives* (pp. 113-128). Springer, Cham. DOI: https://doi.org/10.1007/978-3-030-48531-3_8 (ETIS 3.1)

Tapver, T. (2019). CSR reporting in banks: does the composition of the board of directors matter. *Quantitative Finance and Economics*, 3(2), 286-314. DOI: https://doi.org/10.3934/QFE.2019.2.286 (ETIS 1.1)

Autasud ja auhinnad

2022	Eesti Panga teaduspreemia Urmas Sepa mälestuseks doktoriõppe kategoorias, uurimustöö "Luck and skill in the performance of global equity funds in Central and Eastern Europe" eest
2022	Parima doktorandi uurimistöö auhind, Baltic Economic Association (BEA), uurimustöö "Luck and skill in the performance of global equity funds in Central and Eastern Europe" eest
2022	Dora Pluss T1.1 lühiajalise õpirände stipendium esitlemaks uurimustööd "Luck and skill in the performance of global equity funds in Central and Eastern Europe" konverentsil 4th Baltic Economic Conference Kaunases, Leedus 27-28. juunil 2022
2021	Vello Venseli teaduspreemia silmapaistva uurimustöö eest, Eesti Majandusteaduse Selts (EMS) uurimustöö "Luck and skill in the performance of global equity funds in Central and Eastern Europe" eest
2021	Finalist konkursil "Teadus kolme minutiga", Eesti Teaduste Akadeemia
2020	Dora Pluss T1.2 doktorantide õpirände stipendium tegemaks individuaalset uurimistööd Copenhagen Business School-is külalisuurijana perioodil jaanuar–märts
2018	Rein Otsasoni stipendium Eesti noorele silmapaistvatele majandusüliõpilasele, SA Rein Otsasoni Fond
2017	Parima magistritöö auhind, Swedbank AS

Lisainformatsioon

06.2022	4th Baltic Economic Conference, seansi juhataja
10.20–01.2021	CFA Institute, Teaduskonnapoolne nõustaja ja tiimijuht

ISSN 2585-6901 (PDF)
ISBN 978-9949-83-934-6 (PDF)