University of Latvia

Faculty of Economics and Management

KNUT J. MICHELBERGER

IMPACT OF CORPORATE GOVERNANCE ON FIRM PERFORMANCE AND TOTAL SHAREHOLDER RETURN OF GERMAN LISTED COMPANIES

Doctoral Thesis

Submitted for the Doctor's degree in Management Science (Dr. sc. admin.)
Subfield Business Management

Supervisor: Prof. Dr. Dr. h.c. Josef Neuert

Riga, 2017

Table of Contents

List of Figures

List of Tables

List of Abbreviations

5y	5 years
AG	Part of the company name required by the German Law for Joint Stock Companies
AktG	German Stock Corporate Act
AV	Actual Value
AAGR	Average Annual Growth Rate
CAGR	Compound Annual Growth Rate
CAPEX	Capital Expenditures
CEO	Chief Executive Officer
CG	Corporate Governance
D&O Insurance	Directors & Officers insurance
DAX30	German stock index including the 30 companies with the highest market capitalization (blue-chip companies)
DCGK	Deutscher Corporate Governance Kodex (German Corporate Governance Code)
DIMAX	German Stock Index including all companies of the real estate industry
EV	Excess Value
EVA	Economic Value Added
Exec. Board	Executive Board
Excep.	Exception
Financ. Lev.	Financial Leverage
GDP	Gross Domestic Product
IPO	Initial Price Offering
IQR	Interquartile Range
KonTraG	Law of Control and Transparency
m	Million
MDAX	German stock index for mid-caps including the 50 blue-chip companies with medium-sized market capitalization
MGR	Median Growth Rate
Mgment.	Management
NASDAQ	U.S. stock exchange listing the biggest US technology

	companies
NIE	New Institutional Economics
No-Sustain. Comp.	Compensation not linked to sustainable firm performance
NPV	Net Present Value
OECD	Organization for Economic Co-operation and Development
P/B ratio	Price-Book Ratio
Rev.	Revenue
Rev. Share	Revenue Share
ROA	Return on Assets
ROCE	Return on Capital Employed
ROE	Return on Equity
ROIC	Return on Invested Capital
S&P 500	Standard & Poor's Stock Index (including the 500 biggest companies in terms of market capitalization)
SDAX	German Stock index including 50 blue chip companies with a smaller market capitalization
Sup. Board	Supervisory Board
Sup. Experience	Supervisory Board Member Experience
Sustain. Comp.	Compensation linked to sustainable firm performance
TecDAX	German stock index including the 50 biggest technology companies by market capitalization
TEUR	Thousand Euro
TSR	Total Shareholder Return

INTRODUCTION

The failure of several corporations such as *Enron, Tyco, Parmalat, Skandia, Lehman Brothers,* and others in the last decade has indicated that firms should undertake additional modifications in their corporate governance (CG) to increase transparency and to assure shareholders' reliance on management.[1] It seems to be a large consensus among academics and business professionals that new efforts are important to improve corporate governance practices to protect shareholder interests and to stabilize the market economy basics due to the fact that many scholars, economic analysts, and corporate practitioners have linked the severity and increasingly circular nature of financial and economic crises to failures of corporate governance.[2]

Although several corporate governance codices are introduced in many countries, they are not legally binding but provide recommendations for good corporate governance. There are several different concepts of corporate governance. The liberal model that is common in the U.S. and UK tend to prioritize shareholder interests. The 'coordinated' model in Europe and Japan recognizes additionally the interests of employees, customers, suppliers, managers, and the community.[3] Each model has its distinct advantage. The liberal model of corporate governance in the UK and the U.S. encourages more radical innovation and cost competition, whereas the coordinated model of corporate governance encourages more incremental innovation and quality.

The term 'corporate governance' summarizes efforts to optimize a company's management system and its monitoring. The concept is based mainly on the agency theory and the problem of information asymmetries.[4] The agency theory's essence is the separation of management and monitoring. A manager, or an entrepreneur, raises funds from investors either to put them to productive use or to cash out his shareholders or owners. The financiers need the manager's

---

[1] Hermalin, B. E., & Weisbach, M. S. (2012). Information disclosure and corporate governance. *Journal of Finance*, 67, 195–234, p. 326.

[2] Sun, W., Stewart, J., & Pollard, D. (2011). Introduction: rethinking corporate governance – lessons from the global financial crisis. In W. Sun, J. Stewart & D. Pollard (eds.), *Corporate Governance and the Global Financial Crisis: International Perspectives* (pp. 1-22). Cambridge: Cambridge University Press, p. 1; Gupta, K., Chandrasekhar, K., & Tourani-Rad, A, (2013). Is corporate governance relevant during the financial crisis? *Journal of International Financial Markets, Institutions and Money*, 23, 85-110, p. 86.

[3] Odenius, J. (2008). Germany's Corporate Governance Reforms (*IMF Working Paper* WP/08/179). New York: International Monetary Fund, p. 3.

[4] Schillhofer, A. (2003). Corporate Governance and Expected Stock Returns: Empirical Evidence from Germany. Wiesbaden: DUV, p. 11.

human capital to generate returns on their funds. The manager needs the financiers since he either does not have enough capital or he does not want to take risks or he has not an entrepreneurial idea. In this context, the agency theory refers to the difficulties financiers and investors, respectively, have in assuring that their funds are not 'wasted' on unprofitable projects. In general terms, financiers and managers sign a 'contract' specifying how the manager should use the funds, and how returns are divided between him and the financiers.[5] One form of materialization of this mostly implicit contract between principal and agent is a corporate governance code which defines procedures, mechanisms, and relations by which corporations are directed and controlled.

Governance is a historic term from the field of political philosophy and political science. In the 1950s, the concept of governance arose in American business discourse.[6] A decade later, the World Bank introduced the term 'good governance'.[7] Today, corporate governance defines the regulatory framework for the management and supervision of companies. The corporate governance framework is largely determined by legislators and owners,[8] whereas the actual corporate governance design of a company falls to the supervisory board or the board of directors. However, there is still no common understanding of a single definition of corporate governance.[9]

The academic literature discusses 'good corporate governance' and the improvement of existing corporate governance. 'Good corporate governance' should ensure and guide a responsible, professional, and transparent business administration in the interest of owners, but also of external stakeholders.[10] Discussed characteristics of good corporate governance including regulations concerning appropriate risk management, procedures, management

[5] Rani, G. G., & Mischr, R. (2008). Corporate Governance: Theory and Practice. New Dehli: Excel Books, p. 24.

[6] Drucker, P. (1951). The New Society. The Anatomy of the Industrial Order. London: William Heinemann, pp. 322-324; Carroll, A., & Buchholtz, A. (2009). Business and Society: Ethics and Stakeholder Management. Mason: South-Western, pp. 127-128.

[7] Wouters, J., & Ryngaert, C. (2005). Good Governance: Lessons from International Organizations'. In D. Curtin & R. A. Wessel (eds.), *Good Governance and the European Union: Reflections on Concepts* (pp. 69-102). Antwerp: Intersentia, p. 72.

[8] Spira, L. (2002). The Audit Committee: Performing Corporate Governance. New York: Kluwer, p. 11.

[9] Stiglbauer, M. (2010): Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt. Wiesbaden: Springer Gabler, p. 9.

[10] Felo, A. J. (2011). Corporate Governance and Business Ethics. In A. Brink (ed.), *Corporate Governance and Business Ethics* (pp. 281-296). Dordrecht: Springer, pp. 282-283; Plessis, J. P., Großfeld, B., Luttermann, C., Saenger, I., Sandrock, O., & Casper, M. (2012). German Corporate Governance in International and European Context (2nd ed.). Heidelberg: Springer, p. 39.

organization, long-term value creation, transparency, safeguarding mechanisms to secure the interests of stakeholders, and, overall, a clearly defined control structure.[11] In the framework of the agency theory, corporate governance is viewed as a set of mechanisms to protect outside investors, respectively, shareholders or principals, against the expropriation by insiders, respectively, the executive directors,[12] because, according to the agency theory, managers will serve their interests rather than those of owners or shareholders (principal). To avoid such problems, corporate governance rules should prevent the abuse of owner interests through establishing monitoring standards.[13]

The subject of good corporate governance has gained increasing importance in Germany since the 1990s. The German government passed the Law of Control and Transparency (KonTraG) in 1998 which was one of the first corporate governance laws worldwide. In 2000, the Federal Government has set up a government commission on the modernization of company law due to fraudulent bankruptcy cases. The commission is funded by the private sector and completely independent in their decisions from government interference.[14] The Commission released the first "German Corporate Governance Code" in 2002. According to Section 161 of the German Stock Corporation Act the German Corporate Governance Code applies for all listed companies. The supervisory and executive boards of corporations are obliged to explain annually if the Code is adopted or rejected as a whole or that they follow the Code only in parts.[15] Insofar, in the German case, an objective benchmark exists to qualify and to examine the several dimensions of good corporate governance whereas in most countries, in particular in countries following the liberal model of corporate governance, such a compliance declaration is not required so that internal data concerning structural aspects of company-specific corporate governance characteristics are not available.

---

[11] Passenheim, O. (2010). Enterprise Risk Management. London: Ventus., p. 11; OECD (2006). *OECD Principles of Corporate Governance*. Paris: OECD, p. 15.

[12] La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics*, 58, 3-27., p. 4.

[13] Henry, T. (2010). Does Equity Compensation Induce Executives to Maximize Firm Value or Their Own Personal Wealth?. In Cheryl R. Lehman (ed.), *Ethics, Equity, and Regulation*: *Advances in Public Interest Accounting, Volume 15* (pp.111 - 139). Bingley: Emerald, p. 113-115.

[14] Plessis, J. P., Großfeld, B., Luttermann, C., Saenger, I., Sandrock, O., & Casper, M. (2012). German Corporate Governance in International and European Context (2nd ed.). Heidelberg: Springer. pp. 31-39.

[15] Plessis, J. P., Großfeld, B., Luttermann, C., Saenger, I., Sandrock, O., & Casper, M. (2012). German Corporate Governance in International and European Context (2nd ed.). Heidelberg: Springer. pp. 34-35.

However, this study determines in Chapter 1 that the research consensus in high-rated journals–such as *Journal of Management, American Economic Review, Review of Quantitative Finance and Accounting, Journal of Financial Economics, International Journal of Business, European Journal of Law and Economics, International Journal of Economics & Management, Corporate Governance, The Accounting Review, International Journal of Accounting, Strategic Management Journal, Journal of Law and Economics, Journal of Management Studies, and the Journal of Banking & Finance*–prior to the introduction of corporate governance codices in several countries (2003-2004) is that several aspects such as board size, board independency, the existence and the number of committees, and other variables have a significant effect on firm performance. The number of research verifying positive effects decreases after the corporate governance codices were introduced in several countries. This study assumed that this is the result of the homogenization of corporate governance regimes on the firm level so that the overall differences between companies concerning good corporate governance level decrease. Most of the companies fulfill the overall rules, as it is confirmed in the empirical part of this study, whereas the micro-level differences become more important in its effects.

Therefore, this study widens its scope by including soft factors. Apart from the formal structure of governance defined in the codices such as the German Corporate Governance Codex, another dimension of corporate governance has found an increasing interest in the last years in the framework of the financial crisis. Some studies have examined the effect of distinct board competence in the framework of financial crises such as the most recent empirical research within this framework of Hau and Thum (2010).[16] They have examined not only firm performance and formal aspects of the company-specific corporate governance regime of 29 banks such as multiple board membership, financial and banking experience as well as the number of board members with PhDs. However, this research has not yet found a widespread scope of application which may also be the result of data issues. Hau and Thum (2010) state that the data collection concerning the competence variables was extremely difficult because data on educational background and industry experience are not available in one database but must be collected from many sources. Also, this study has found that collecting personal data for every supervisory board member of 128 companies with a total number of 1.786 board members (see Annex II) is almost impossible not only because of the timely effort but also because of data availability particularly for smaller firms where personal

[16] Hau, H., & Thum, M. (2010). Subprime Crisis and Board (In-)Competence: Private vs. Public Banks in Germany. *Fontainebleau: INSEAD*.

data for each supervisory board is not available. Therefore, this research dimension is examined by expert interviews conducted with 30 members of the included companies' supervisory boards.

The **field of study** of this thesis is the German corporate governance system as an example for a concept of good corporate governance. The **research problem** is whether the German system is relevant in serving the shareholders' interest. According to the agency theory of Jensen & Meckling (1976), a positive relationship between company performance and good corporate governance should exist which is also assumed in general by recent research,[17] while other researchers doubt that the highly-regulated European corporate governance systems and particularly the German corporate governance regime are really serving effectively the shareholders' interests.[18] This issue is examined based on the sample of 128 largest German stock-listed prime standard companies constituting the **research object**. Consequently, the **research subject** is the effect of the German good corporate governance system on firm performance and total shareholder return. Therefore, different aspects of this system such as board quality, board competence, board structure, incentivisation, risk-taking, board independence, code compliance, and other variables are defined as research model in Section 3.1. The quantitative and qualitative data analysis examines the effect of 13 factors on serving the shareholders' interests indicated by the dependent variables *firm performance* in terms of revenue growth and profitability as well as *total shareholder return* reflecting the development of the firm and the return on investment as the reason why shareholders risk their capital.

The **purpose** of this thesis is to develop recommendations concerning supervisory board structures and procedures that best serve shareholders, but also other stakeholder groups such as employees, suppliers, and society which is the main intention of the German Corporate Governance Code.

The **aim** of this thesis is to analyze the impact of essential parts of the German Corporate Governance system on firm performance of German listed companies to identify elements

[17] Dignam, A., Galanis, M. (2016). The Globalization of Corporate Governance (2nd ed.). Milton Park: Routledge, p. 154.

[18] Clarke, F., & Chanlat, J. F. (2009). A New World Disorder? The Recurring Crises in Anglo-American Corporate Governance and the Increasing Impact on European Economies and Institutions. In T. Clarke & J. F. Chanlat (eds.), *European Corporate Governance: Readings and Perspectives* (pp. 1-35). New York: Routledge, p. 25.

with positive and negative effects on firm performance and total shareholder return in order to improve supervisory board structures and procedures.

For reaching this aim, the following **tasks are implemented:**

(1) To explore the origins and the history of the theoretical concepts of corporate governance to understand the issues the governance discourse wants to solve.

(2) To deeply analyze prior and current empirical research identifying factors, variables, and research designs relevant within the context of this study based on the literature review of high-rated academic journals and research publications.

(3) To develop and validate an appropriate research design for this thesis.

(4) To develop a factor model including 13 factors for measuring the effects of good corporate governance on firm performance and shareholder return.

(5) To assess and explain the selection of chosen performance parameters as to firm performance and shareholder return, operationalize the model variables and design appropriate measurement approaches.

(6) To collect the data for the 13 factors and 16 corporate governance characteristics through the analysis of 256 annual reports of 128 companies.

(7) To analyze the corporate governance compliance declarations included in the 256 annual reports concerning the manifestation of good corporate governance among the 128 companies included in the sample.

(8) To apply quantitative methods testing bivariate correlations and cumulative influences of corporate governance characteristics on financial performance parameters and testing differences between outperforming and underperforming sample companies.

(9) To validate the quantitative results by means of an expert interview survey with supervisory board members of 15 top-performing and 15 non-performing companies on 29 qualitative aspects of supervisory procedures to get deeper insights into the structural and processual aspects of supervisory board activities and the required personal competence.

Research Questions, Main Hypothesis and Statements for Defence

From the purpose and the aim of this study the following research questions are derived:

(1) Do good corporate governance and board activities explain firm performance differences?

(2) Which corporate governance attributes distinguish performing (outperforming) from non-performing (underperforming) companies?

The **main hypothesis** (H0) is:

> Ho: Good corporate governance in terms of full compliance with the German Corporate Governance system represented in the form of the German Corporate Governance Code (DCGK) leads to a better firm performance and higher total shareholder return.

The hypothesis (H0) is operationalized through the following statements for defense:

(1) Companies with a higher degree of good corporate governance in terms of their compliance with the German Corporate Governance Code show a better firm performance and a higher fulfillment of shareholder interests.

(2) Companies coupling supervisory board compensation with firm performance perform better in terms of revenue growth and total shareholder return, whereas the increase of risk liability of supervisory board members has a negative effect on revenue growth and total shareholder return.

(3) The higher the level of good corporate governance in terms of a higher degree of compliance with the German corporate governance regime, the higher is the management efficiency measured as return on invested capital (ROIC).

(4) Some of the recommendations of the German Corporate Governance Code lead to a higher administrative workload, frictions in the board procedures, and risk aversion.

(5) The required board competence must be situationally determined and adjusted.

Concerning the **research limitations of this thesis**, it must be noted that this study is based on a **medium-sized sample** (128 companies) compared to some other international studies with larger cross-country samples. However, recent studies have preferred a single-country

approach because the growing differentiation of country-specific codifications[19] leads to the problem of the decreasing comparability of results and decreasing validity of cross-country studies.[20] Furthermore, a frequent change in the country-specific codes impedes the comparability of one-country studies and reduces the time range for observing causal effects. Although the **observation period** of **five years** appears short, it covers the five-year period from **2010 to 2014** whereby the base year marks the year in which the last wave of major changes of the German Corporate Governance Code of the years 2008 and 2009 became effective.[21] Therefore, it can be claimed that this study is based on data which are highly comparable because context variables remain constant over the observation period. And, compared to recent studies focusing on Germany, this study's sample examines the largest sample and observes a longer period.

Research Methods

Within the context of this study, the agency theory and prior corporate governance research is analyzed to define empirical research methods and research design. The literature review in the related research fields is based on

- the analysis of research publications and institutional documents such as regulations, legal documents, policy papers, etc. concerning the corporate governance discourse, respectively, the history of ideas of corporate governance starting with the beginning of this discourse, the status of the discussion of the principal-agent theory, and the development of the German Corporate Governance Code,

- the analysis of empirical research concerning firm performance and corporate governance published in academic journals with a journal quality rating of at least a C-rating in the VHB Journal Rating, respectively, a rating of above '3' in the ABS Academic Journal Rating, or empirical studies published in reputable publishing houses such as Springer Science or Wiley, or empirical studies published by reputable institutions such as the US National Bureau of Economic Research (NBER), the

[19] OECD (2015): G20/OECD Principles of Corporate Governance: OECD Report to G20 Finance Ministers and Central Bank Governors. Paris: OECD, p. 13; Rose, C. (2016). Firm performance and comply or explain disclosure in corporate governance. *European Management Journal*, 34(3), 202-222, p. 202.

[20] Filatotchev, I., Jackson, G., & Nakajima, C. (2013). Corporate governance and national institutions: A review and emerging research agenda. *Asia Pacific Journal of Management*, 30, 965–986.

[21] Roth, M. (2013). Corporate Boards in Germany. In P. Davies, P. L. Davies, K. J. Hopt, R. Nowak & G. Solinge (eds.), *Corporate Boards in European Law: A Comparative Analysis* (pp. 253-366). Oxford: Oxford University Press, p. 292.

International Monetary Fund (IMF), the Organization of Economic Development (OECD), and other renowned institutions and universities such as the INSEAD or the Harvard Business School. The main sources for the literature review concerning empirical studies published in scientific journals were *Science Direct, JSTOR, Scopus, Thomson Reuters Web of Science, Sage Journals Online, Emerald, Taylor& Francis,* and *EBSCOHost.*

The empirical research is based on primary and secondary data. Primary data are collected through interviews with board members of companies included in the total sample of 128 companies. The secondary data are collected from a professional investor database and annual reports of the included companies.

The primary qualitative data collection applies the qualitative interview approach with open and closed questions. 30 participants are interviewed concerning their attitude towards the German Corporate Governance Code in the framework of their daily supervisory board activities, organizational and structural aspects, problems caused by the regulation, and further question in the framework of supervisory quality.

The secondary quantitative data includes the financials of all 128 companies collected from the investor database such as return on investment, revenue, and total shareholder return. Data concerning the good corporate governance level are collected form the annual reports and the corporate governance compliance declarations. These quantitative data are analyzed through statistical test such as the bivariate correlation analysis, tests for statistical differences (t-test), and the multiple regression analysis. These tests are conducted according to prior quantitative empirical research in the research field.

Research Data and Time Period

The total sample consists of all companies listed in the German stock indices DAX30, MDAX, SDAX, and TecDAX. Thus, this sample represents the largest German stock-listed companies. Due to the fact that additional data beyond the financials are collected, the total sample's size is reduced, because data regarding corporate governance are not available for all companies in the period 2010 to 2014. Thus, for example, for companies such as SHW, Stabilus, Tele Columbus, TLG, Brass Monie, etc. the annual reports are not available because these companies are listed in the indices in 2014 but not since 2010. For example, TLG or Tele Columbus are listed in the Prime Standard only since 2012, respectively, 2014 due to their initial public offering (IPO) in these years. Therefore, they were not obliged to publish

compliance declarations in the years before. Accordingly, the total sample is reduced by 37 companies, so that the research sample accounts for 128 companies. However, the total revenue of all companies included in the sample amounts to EUR 1,507bn (2014) (see Annex II: Dataset) while the German GDP in 2014 is EUR 2,915bn. Consequently, the total revenue of the sample is equal to 51% of the German Gross Domestic Product (GDP).

The financial data are obtained from the financial databases providers ThomsonOne and Morningstar Direct. The data are validated and checked on a random basis with the annual reports of the companies included in the sample. The corporate governance data are also collected from annual reports and corporate governance compliance statements. According to the German Corporate Governance Code (DCGK) each stock-listed company has to explain to what extent they comply with the DCGK rules. Thus, the DCGK represents a benchmark of good corporate governance and allows collecting quantitative and thus objective and comparable data to estimate the corporate governance level without any subjective influences such as researcher classifications or estimations.

Originally, it was planned to conduct extensive online survey interviews. However, this option was discarded due to the experience in the pretest, which has shown that the interest in surveys is extremely limited among the target group. Therefore, the survey is conducted by questionnaire-based interviews with 30 supervisory board members active in supervisory boards of the sample's companies. The questionnaire contains questions with set answers (multiple choice) and without set answers. The items of the questions with set answers were collected by a pretest to reduce the number of all possible statements so that the main part of the survey could be analyzed by descriptive statistics. Questions without set answers are summarized through sorting the answers by topics and the evaluation of statements respectively by interpretation or citation of statements.

Applied Data Processing Methods

The quantitative data concerning firm performance and corporate governance structure are analyzed through different statistical tests. Descriptive statistics is applied to characterize the total sample concerning their corporate governance and firm performance as well as specific groups out of the total sample. Also, the expert interviews are analysed through descriptive statistics. The bivariate analysis examines correlations between single variables and allows identifying bivariate relationships to answer specific research questions. The multiple regression analysis was applied to test the cumulative effect of all independent variables on different dependent variables (firm performance and total shareholder return). The t-test was

applied to test the signficance of the differences between specific groups of the sample distinguished by their firm performance and their total shareholder return.

Novelty of Research

The scientific novelty of this research is established through the following four main points:

(1) Development of a new research model which includes 13 qualitative and quantitative factors including the main aspects of prior research, as well as additional parameters provided by the compliance declarations from all listed companies in Germany.

(2) Measuring performance not only on the firm level but also on the shareholder level which is the main reference for the good corporate governance discourse and the principal-agent theory.

(3) This is the first study on the impact of corporate governance of German listed companies with a new approach since major changes were made to the legislation.

(4) Providing empirical evidence that main elements of the current corporate governance system are irrelevant for shareholders and stakeholders or are even against their interests.

Theoretical and Practical Significance of the Thesis

This study provides empirical evidence that main elements of the current German corporate governance system – which is one of the most advanced and most detailed governance systems in the world[22]– are irrelevant for shareholders and stakeholders or are even against their interests. As such, this 'model' is often discussed as a best practice example for the stakeholder-governance system.[23] Hence, this study's results, conclusions and recommendations provide a highly topical and comprehensive view on the effects of this good corporate governance regime particularly due to its methodical approach and observation period. This study examines, in contrast to most of the studies in this research area, two areas of corporate governance. Based on the compliance with good corporate governance systems represented by the German Corporate Governance Code, realization of good corporate

[22] German Government Committee (2015). *German Corporate Governance Code*. German Government: Berlin, p. 1.

[23] Rasheed, A. A., & Yoshikawa, T. (2012). The Convergence of Corporate Governance: Promise and Prospects. In A. Rasheed & T. Yoshikawa (eds.), *The Convergence of Corporate Governance: Promise and Prospects* (pp. 1-31). London: Palgrave MacMillan. p. 22.

governance is measured on the firm level. Whereas the compliance with good corporate governance of the German corporate governance regime is quantifiable and thus empirically observable, board activities and processes can only be indirectly observed by qualitative interviews reflecting the attitudes and opinions of the interviewees. This allows an in-depth examination of the effects of the German good corporate governance system on firm level leading to a broader view on the different factors of corporate governance and more differentiated and detailed recommendations for the supervisory practice in the framework of the German Corporate Governance Code. In this respect, this study must be distinguished from prior studies by its scope, method, time period, measures, and data collection approach which is discussed in detail in Section 2.3.

Concerning the practical significance, this study is distinct to prior studies concerning the German system due to its focus not only on a broad sample including good and 'bad' performing companies but also by its focus on the differences between both, allowing practical recommendations for 'all' companies as well as for companies with an explicit growth strategy which none of the German good corporate governance studies provide.

Scope of the Thesis and Structure

The basic structure of this thesis consists of three main parts. Chapter 1 discusses the theoretical background of the corporate governance discourse, which is mainly the principal-agent theory. Based on this theory several countries have introduced regulations to protect shareholders against disadvantages due to information asymmetries and agency costs. Thus, the second part of Chapter 1 presents the results of this discourse regarding the German Corporate Governance Code (DCGK). The DCGK aims at protecting shareholders against disadvantages resulting from principal-agent issues. Chapter 2 examines the findings of the empirical research regarding corporate governance characteristics and its impact on firm performance. Various empirical studies examined the influence of different sets of corporate governance characteristics on different firm performance measures. These studies are discussed and summarized in Chapter 2. Chapter 3 develops a 13-factors research model of good corporate governance as the basis of this study's empirical research, the research design, and the selected methods as well as the data collected.

Chapter 4 represents the empirical part of this study. Two different approaches are selected: (1) a quantitative data analysis, based on financial figures and corporate governance variables, and (2) a survey of supervisory board members of companies among the sample. The last

chapter discusses the findings of both approaches and generates general conclusions concerning the relationship between firm performance and good corporate governance.

Approbation of Results of Research

Results of this research were presented on 11 international scientific conferences and discussed in 8 scientific double peer- reviewed publications.

1. Author's presentations in scientific conferences:

- *A Survey on Competence and Administration of Supervisory Board Activities.* Riga Technical University 57th International Scientific Conference: "Scientific Conference on Economics and Entrepreneurship" (SCEE'2016), Riga, Latvia, September 29-30, 2016.

- *Corporate Governance Effects on Firm Performance: A Literature Review.* Klaipėda 7th International Scientific Conference: "Problems of Transport Logistics Development" Inter-TRANSLOG'2016, Klaipėda, Lithuania, September 12, 2016.

- *The Problem of Diminishing Marginal Utility of good Corporate Governance, Firm Performance and Supervisory Board Governance of German Stock-Listed Companies.* International Academic Conference on Management, Economics and Marketing, Bratislava, Slovakia, July 6-7, 2016.

- *Risk Aversion in the Board Room. An Analytical Approach on Corporate Governance of German Stock-Listed Companies and Firm Performance.*19th EBES Conference, Istanbul, Turkey, May 26-28, 2016.

- *Influence of Supervisory Board Compensation and Incentivisation on Firm Performance. A Statistical Approach*. MIRDEC 2016 Conference on Social, Economics, Business and Educational Science, Budapest, Hungary, May 24-26, 2016.

- *Homo Economicus and Manager Behavior.* QUAERE 2016 (vol. VI), Interdisciplinary Scientific Conference for PhD Students and assistants, Praha, Czech Republic, May 23- 27, 2016.

- *Relationship between Quality and Competence of Supervisory Board Activities and Corporate Governance.* WEI International Academic Conference, Vienna, Austria, April 11-13, 2016.

- *The Impact of Corporate Governance on Firm Performance - A Literature Review.* 5th CER Comparative European Research Conference for PhD Students of EU Countries, SCIEMCEE, London, March 28-31, 2016.

- *Impact of Corporate Governance Competence on Firm Performance*. 74th Annual Scientific Conference of University of Latvia at the session ‘’Impact of Globalization to National Economies and Business’’, Riga, Latvia, January 28th, 2016.

- *The Impact of Board Room Competence on Sustaining Firm and Brand Value in the Context of a Competence Based View.* International Masaryk Conference for Ph.D. Students and Young Researchers, Praha, Czech Republic, December 14-18, 2015.

- *The Impact of Board Room Competence on Sustaining Firm and Brand Value in the Context of a Competence Based View*. International Business and Economic Conference: ‘’Current Approaches of Modern Management and Strategy Research’’, Kufstein, Austria, November 201

2. Author’s Scientific Publications in Peer-Reviewed Publications

- Michelberger, K. (2016). A Survey on Competence and Administration of Supervisory Board Activities. *Economics and Business* (in process to be published); double blind peer-reviewed journal.

- Michelberger, K. (2016). Corporate Governance Effects on Firm Performance: A Literature Review. *Journal of Regional Formation and Development Studies, No.3 (20), pp.84-95.*

- Michelberger, K. (2016). Risk Aversion in the Board Room. An Analytical Approach on Corporate Governance of German Stock-listed Companies and Firm Performance. *Journal of European Integration Studies: Research and Topicalities, No. 10 (2016), pp. 135-144.*

- Michelberger, K. (2016). The Problem of Diminishing Marginal Utility of Good Corporate Governance, Firm Performance and Supervisory Board Governance of German Stock-Listed Companies. *Journal of Latvian Humanities and Social Science*; Volume 24, Issue 2, pp. 60-78.

- Michelberger, K. (2016). Relationship between Quality and Competence of Supervisory Board Activities and Corporate Governance. *The 2016 WEI International Academic*

Conference Proceedings. Available from: http://www.westeastinstitute.com/wp-content/uploads/2016/05/Knut-Michelberger.pdf

- Michelberger, K. (2016). Homo Economicus and Manager Behavior. *Proceedings of Interdisciplinary Scientific Conference for PhD Students and assistants, QUAERE 2016* (vol.VI). Available from: http://www.vedeckekonference.cz/library/proceedings/quaere_2016.pdf

- Michelberger, K. (2016). Influence of Supervisory Board Compensation and Incentivisation on Firm Performance. A Statistical Approach. *Proceedings of MIRDEC 2016 Conference on Social, Economics, Business and Educational Science, Budapest,* May 24-26, 2016. ISBN: 978-605-83117-0-1. Available from: http://media.wix.com/ugd/f279ca_833f8b1a6ae94f13918a5134fed16012.pdf

- Michelberger, K. (2015). Impact of Corporate Governance Competence on Firm Performance, Research Model and Research Method. *Proceedings of the International Masaryk Conference for Ph.D. Students and Young Researchers*, 6, 184-19. Available from: http://www.vedeckekonference.cz/library/proceedings/mmk_2015.pdf

Size of the Promotional Work

The dissertation comprises 170 pages, 4 chapters, 44 tables, 18 figures, 11 appendices, and 347 references. 17 recommendations are derived from the analysis of quantitative and qualitiative data.

Content and structure of dissertation

The data set as the basis of the empirical research comprehends 2,348 observations for 128 companies for the time period 2010-2014 including financial data for five years and 16 variables indicating board characteristics extracted from 256 annual reports. The first Chapter outlines the theoretical foundation of the corporate governance discussion and the theoretical framework of corporate governance is presented. The basis of the 'theory' of corporate governance is mainly the agency theory respectively the principal-agent theory constituting the model-theoretical basis for problems the corporate governance discourse tries to solve. Furthermore, the interaction between both fields of research is presented to show how the theoretical problem of the principal-agent relationships has developed historically in public companies and the contribution the corporate governance discussion provides to solve 'real' problems in the relationship between management and shareholders, but also between

management, shareholders, and other stakeholders. It is further discussed whether and what influence the principal-agent problem can have on firm performance. Different approaches are discussed to measure business success, in particular regarding their respective relevance for the principal-agent problem.

Chapter 2 has examined quantitative empirical research mainly from high-rated journals. It is stated that prior to the introduction of corporate governance codices in several countries (2003-2005) several aspects such as board size, board independency, the existence and the number of committees and other variables have had a significant effect on firm performance. The number of research verifying positive effects decreases after the corporate governance codices were introduced in several countries. It can be summarized that the empirical research in the years before corporate governance was regulated by law and codes in most industrialized or emerging countries (prior to 2005) indicates that differences in firm performance exist between companies with and without explicit corporate governance, while the research in the post-Sarbanes-Oxley period–characterized by an increasing homogenization of corporate governance within countries–tends to provide more neutral or even negative results. Furthermore, the higher differentiation between the countries' good corporate governance systems represented by their different corporate governance codes questioning the research value of cross-country studies on firm level leading to the research design of this study focusing on only one governance regime.

Based on prior research as discussed in Chapter 2 and further findings from the theory discussion provided in Chapter 1, Chapter 3 has developed a factor model constituting the empirical research framework. 13 factors are identified based on the variable sets of prior research and other variables which are available due to the German regulations requiring compliance declarations allowing to collect data such as board compensation and management remunerations which are relevant in the theoretical framework of the governance discourse, for example, in terms of incentive effects. Thus, for example, the German Corporate Governance Code requires that the supervisory board compensation should be linked with firm performance. Additionally, the selection of the different performance parameters was discussed. Three performance parameters are tested in the data analysis: (1) revenue growth as an indicator for the management success in the market which is also in the employees/unions interest due to the job creation effect, (2) the return on invested capital (ROIC) as an indicator for management's ability of efficient asset/capital allocation, and (3) total shareholder return indicating the degree to which management fulfills shareholder interests. Furthermore, the theses to be defended are operationalized in several research

propositions which lay the basis for the data analysis structure. Finally, the data collection procedure in terms of data sources, calculation of variables and further details such as the handling of data fluctuation in the observation period was documented and discussed. In Chapter 4, empirical evidence is gained by the use of quantitative methods to test bivariate correlations and cumulative influences of corporate governance characteristics as well as testing differences between outperformers and low performers. To validate the results from the quantitative analysis, questionnaire based expert interviews were conducted with 30 members of supervisory boards representing the selected sample companies.

1. THEORIES AND CORE CONCEPTS OF CORPORATE GOVERNANCE

The theoretical foundation of the corporate governance discussion is presented in the following sections. Section 1.1 presents the foundation of the 'theory' of corporate governance, while Section 1.2 presents the 'theory' of corporate governance, which is mainly the agency theory, respectively, the principal–agent theory as the model–theoretical basis for problems the corporate governance approach attempts to solve. The interaction between both fields of research is presented in sections 1.2.2 and 1.2.3. These sections show how theoretical problems in principal–agent relationships have developed historically in public companies and what contribution corporate governance discussions provide to solve the 'real' problems in the relationship between management and shareholders and also among management, shareholders, and other stakeholders. Section 1.3 discusses whether and what influence the principal–agent problem can have on firm performance. Different approaches are discussed to measure business success, particularly regarding their respective relevance to the principal–agent problem.

1.1. The Development of New Institutional Economics as the Foundation of Corporate Governance Theory

New institutional economics (NIE) is a recent theory of economics studying the effect of institutions on economic entities.[24] Institutions are—within the meaning of the new institutional economics—formal and informal rules, including mechanisms for enforcing rules restricting the behavior of individuals in transactions, therefore, leading to sub-efficient solutions.[25]

Already some classics dealt with the sub-optimal impact on economic efficiency and rationality by institutions.[26] Adam Smith referred to constraints on rational behavior in the

[24] Breuer, M. S. D. (2010). Socio-Cognitive Dynamics in Strategic Processes. Köln: EUL., p. 22; Hlaváček, J., & Hlaváček, M. (2013). Generalized Microeconomics. Prague: University of Prague, pp. 37-38;

[25] Richter, R. (2016). Essays on New Institutional Economics. Heidelberg: Springer, p. 66; Sammeck, J. (2012). A New Institutional Economics Perspective on Industry Self-Regulation. Wiesbaden: Gabler, pp. 47-49.

[26] Ozawa, T. (2005). Institutions, Industrial Upgrading, and Economic Performance in Japan. Cheltenham: Edward Elgar, p. XI.

form of informal institutions.[27] David Hume discussed property rights as a limiting factor for market efficiency and rationality.[28] John S. Mill recognized the importance of habits for the formation of market prices and a reason for market inefficiency.[29]

However, both the neoclassical theory and Keynesian theory ultimately neglected institutions.[30] New institutional economics can be traced back to Ronald Coase. In "The Nature of the Firm" (1937), Coase proposes an economic explanation for why individuals choose to form partnerships, companies, and other business entities rather than trading bilaterally through contracts on a market. The traditional economic theory of the time suggested that because the market is 'efficient', it should always be cheaper to source out than to hire.[31] Coase noted, however, that there are some transaction costs to using the market; the cost of obtaining a good or service via the market is actually more than just the price of the good.[32] Other costs, including search and information costs, bargaining costs, keeping trade secrets, and policing and enforcement costs, can all potentially add to the cost of procuring something via the market.[33] This suggests that firms will grow when they can arrange to produce what they need internally and somehow avoid these costs.[34] A firm is thus essentially a device for creating long-term contracts when short-term contracts occurring or when using markets are too disruptive in the sense that they oppose costs such as transaction costs for

[27] Whelan, F. G. (2015). Political Thought of Hume and His Contemporaries*: Enlightenment* (Volume 2). Milton Park: Taylor & Francis, p. 84.

[28] Massey, C. R. (2010). Property (7th ed.). New York: Wolters Kluwer, p. 2.

[29] Solari, S. (2015). Individual Rights, Economic Transactions, and Recognition: A Legal Approach to Social Economics. In M. White (ed.), *Law and Social Economics: Essays in Ethical Values for Theory, Practice, and Policy* (pp. 41-60). New York: Palgrave Macmillan, p. 54.

[30] Kasper, W., Streit, M. E., & Boettke, P. J. (2012). Institutional Economics: Property, Competition, Policies. Cheltenham: Edward Elgar, p. 214.

[31] Selig, G. J., LeFave, R., & Bullen, C. V. (2010). Implementing Strategic Sourcing. Amerfoort: Van Haren, pp. 7-8.

[32] Coase, R. H. (1990). The Firm, the Market, and the Law. Chicago: University of Chicago Press, p. 6.

[33] Khalil, E. L. (1996). After the Special Nature of the Firm: Beyond the Critics of Orthodox Neoclassical Economics. In J. Groenewegen (ed.), *Transaction Cost Economics and Beyond* (pp. 289-308). Boston: Kluwer, pp. 292-294.

[34] Rugman, A. M. (2002). International Business: Theory of the multinational enterprise. London: Routledge, pp. 180-182.

searching partners, intermediate goods, and monitoring the quality of intermediate goods, suppliers and partners.[35]

However, the term 'new institutional economics' was coined by Williamson (1971).[36] Williamson (1971) discussed intensively transaction costs and their impact on the efficiency of organizations.[37] He treated organizational failures in the context of transaction costs.[38] His main hypothesis was that markets and hierarchies represent alternative forms of coordinating work for the organization and concluded that weaknesses of both forms of coordination must be compared in the decision-making process regarding make-or-buy decisions.[39] Over the next few years, he expanded this basic thesis to different ideas and concepts. He applied, for example, the contract typology of McNeil (1974) and expanded his model–theoretic assumptions.[40] According to McNeil (1974), the homo economicus of neo-classical theory is rather characterized by bounded rationality, individual utility maximization, and opportunistic behavior.[41] Therefore, the coordination of economic activity does not automatically entail an efficient solution; however, it is much more dependent on the form of the organization, i.e., the institutional context, in which an economic activity takes place while the neoclassical theory considers the institutional framework of transactions as given and without influence on the outcome of economic activity.[42]

---

[35] Beschorner, T. (2014). Beyond Risk Management, Toward Ethics: Institutional and Evolutionary Perspective. In C. Luetge & J. Jauernig (eds.), *Business Ethics and Risk Management* (pp. 99-110). Dordrecht: Springer, p. 106.

[36] Yu, F.-L. T. (2011). New Perspectives on Economic Development: A Human Agency Approach. Wageningen: Springer/Wageningen Academic, p. 179.

[37] Frey, C. B. (2013). Intellectual Property Rights and the Financing of Technological Innovation: Public Policy and the Efficiency of Capital Markets. Cheltenham: Edward Elgar, p. 105.

[38] Krzeminska, A. (2008). Determinants and Management of Make-and-Buy: An Extension to Transaction Cost Economics. Wiesbaden: Gabler, p. 78; Wengler, S. (2006). Key Account Management in Business-to-Business Markets: An Assessment of Its Economic Value. Wiesbaden: Springer, pp. 114-115.

[39] Krzeminska, A. (2008). Determinants and Management of Make-and-Buy: An Extension to Transaction Cost Economics. Wiesbaden: Gabler, pp. 8-10.

[40] Johnston, A. (2009). EC Regulation of Corporate Governance. Cambridge: Cambridge University Press, p. 67.

[41] Reichwald, R., & Wigand, R. T. (2008). Information, Organization and Management. Berlin: Springer, pp. 38-49.

[42] Klein, P. A. (2006). Economics Confronts the Economy: Cheltenham: Edward Elgar, pp. 345-347; Butter, F. A. G. (2012). Managing Transaction Costs in the Era of Globalization. Cheltenham: Edward Elgar, pp. 56-57.

However, from the perspective of new institutional economics, the market is only one of several possible forms of coordination, such as hierarchy, firm, and network.[43] New institutional economics, therefore, examines how these different forms of coordination emerge and what effects result from it. Special attention is given to reasons for suboptimal results of transactions, such as market efficiencies and the use of goods.[44] The following theories are used to explain:[45]

(1) Property Rights Theory: The basic assumption is that the value of an asset results not only from its possession, but from the use options, which in turn can be described as actions and interactions of individuals in institutional systems, such as a firm, because the use of the same good can lead to a different value depending on the context of the relevant contractual framework.[46]

(2) Principal–Agency Theory: Due to information asymmetries, i.e., imperfect information distribution between principal and agent, as well as due to incentive mechanisms given by a contractual framework, suboptimal results in the use of a property can arise in that the respective individual benefits from opportunistic behavior are not necessarily identical with the benefits of the organization or of the principal such as shareholders, owners, or stakeholders.[47]

(3) Transaction Cost Theory: A transaction is defined as the reciprocal transfer of goods and information between two economic agents. A transaction is concluded because transaction partners, i.e., principal and agent, such as customers and suppliers or managers and owners, see advantages or benefit in the transaction. Because of the division of labor, complete transparency between transaction partners can never prevail. This results in transaction costs in addition to pure production costs such as

[43] Richter, R. (2016). Essays on New Institutional Economics. Heidelberg: Springer, p. 66.

[44] Picot, A., Reichwald, R., & Wigand, R. T. (2008). Information, Organization and Management. Springer: Berlin, pp. 25, 39; Bickenbach et al. 2002, pp. 189-194.

[45] Schilder, A. (2000*).* Government Failures and Institutions in Public Policy Evaluation: The Case of Dutch Technology Policy. Assen: Van Gorcum, pp. 57-59; Picot, A., Reichwald, R., & Wigand, R. T. (2008). Information, Organization and Management. Springer: Berlin, pp. 39-48.

[46] Furubotn, E. G., & Richter, R. (2000). Institutions and Economic Theory: The Contribution of the New Institutional Economics. Ann Arbor: University of Michigan Press, p. 72.

[47] Chakravarti, A. (2012*).* Institutions, Economic Performance and the Visible Hand: Theory and Evidence. Cheltenham: Edward Elgar, pp. 188-192.

costs for information search, negotiation, decision-making, and monitoring costs for the transfer of property rights.[48]

New institutional economics asks not only for the institutional reasons for the particular design and efficiency of transactions but also asks normatively how institutions should be designed to operate efficiently.[49] One result is the stewardship theory. This theory specifies certain mechanisms that reduce agency cost, including excessive executive compensation, benefit levels and also management incentive schemes, by rewarding them financially or offering shares that align the financial interests of executives with the interests of shareholders and/or other stakeholders.[50]

Overall, new institutional economics is initially intended as a criticism of neoclassical economics. Already Williamson predicted that the economic sciences are increasingly developing "*in the direction of being a science of contract, as against a science of choice*,"[51] Thus, new institutional economics can also be seen as further development of neoclassical economics. On the other hand, it has been criticized by neoclassical theorists because essential concepts such as transaction costs are diffuse.[52] Therefore, new institutional economics does not allow clear derivations for an optimal governance structure and no falsification of hypotheses also due to continuously introducing new variables, such as risk aversion, etc., to adapt the individual case to basic models and findings.[53] Therefore, new institutional economics is still not a unified theory concept today[54], but it consists of several related methodological approaches[55] that overlap as well as complement and relate to each other.

---

[48] Liang, M. (2014). The Microeconomic Growth. Heidelberg: Springer, pp. 69-70.

[49] Richter, R. (2016). Essays on New Institutional Economics. Heidelberg: Springer, p. 92.

[50] Lutz, D., &. Mimbi, P. (2011). Shareholder Value and the Common Good. Nairobi: Strathmore University, p. 298; Clarke, T. (2007). International Corporate Governance: A Comparative Approach. New York: Routledge, pp. 26-29.

[51] Williamson, O. (1998). Transaction Cost Economics: How It Works; Where It Is Headed. *De Economicst*, 146(1), 23-58, p 36.

[52] Talbot, C. (2010). Theories of Performance: Organizational Improvement. Oxford: Oxford University Press, p. 62.

[53] Gordon, C. E. (2016). Behavioural Approaches to Corporate Governance. Milton Park: Routledge, pp. 14-18.

[54]Gordon, C. E. (2016). Behavioural Approaches to Corporate Governance. Milton Park: Routledge, pp. 14-18.

[55] Enkhzaya, C. (2006). Impact of Institutions on Lending: Informal Constraints and Enforcement of Bank Regulation. Wiesbaden: DUV, pp. 12-14.

1.2. The 'Theory' of Corporate Governance

As mentioned in the introduction, corporate governance defines the regulatory framework for the management and supervision of companies whereas the corporate governance framework is largely determined by legislators and owners.[56] However, there is still no common understanding of a single definition of what good corporate governance exactly means.[57] Thus, good corporate governance is a very complex concept and includes compulsory and voluntary actions, regulations, and requirements such as adherence to laws and regulations (compliance), following accepted standards and recommendations as well as developing and following own corporate guidelines. The OECD defines corporate governance as

> *"the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it provides the structure through which the company objectives are set and the means of attaining those objectives and monitoring performance*."[58]

However, there is also still no clear established understanding of corporate governance in the academic literature.[59] This is evident in the fact that, in the German context, there is the additional problem of no adequate translation of the term. Berrar (2001) notes that the definition of corporate governance in the sense of an internal legal company structure is too narrow and static.[60] Other studies define corporate governance as corporate control or monitoring. Thus, research in the field of corporate governance represents or frequently analyzes only some aspects of the corporate governance concept. In the following, corporate governance is meant as it is defined in the Cadbury Commission Report which is the basis for

---

[56] Spira, L. (2002). The Audit Committee: Performing Corporate Governance. New York: Kluwer, p. 11.

[57] Stiglbauer, M. (2010): Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt. Wiesbaden: Springer Gabler, p. 9; Berghe, A. (2012). International Standardisation of Good Corporate Governance: Best Practices for the Board of Directors (2nd ed.). Dordrecht, Springer Science, p. 19.

[58] OECD (2006). OECD Principles of Corporate Governance. Paris: OECD, p. 15.

[59] Pacces, A. M. (2012). Rethinking Corporate Governance: The Law and Economics of Control Powers. Milton Park: Routledge, p. 116.

[60] Berrar, C. (2001). Die Entwicklung der Corporate Governance in Deutschland im internationalen Vergleich (Dissertationsschrift an der Ludwig-Maximilians-Universität Munich). Baden-Baden: Nomos, p. 24.

the implementation of corporate governance requirements in regulations in Britain. This report defines corporate governance simply and plainly as "*the system by which companies are directed and controlled"*.[61]

In the context of the theoretical discussion, corporate governance refers to the specific problems occurring from the separation between the company's direction and its ownership.[62] Therefore, the 'original' meaning of the concept of corporate governance is: "*Corporate Governance is, to a large extent, a set of mechanisms through which outside investors protect themselves against expropriation by insiders*".[63] Thus, the basic definition for this study is: *Corporate governance is the system by which management is controlled and directed so that outside investors (shareholders) or owners are protected against expropriation by insiders (management).*

1.2.1 Origins of Corporate Governance Issues

The origins of the corporate governance discourse in terms of a history of ideas is indispensable in understanding the original issues, progress, and course of the discourse.[64] Koppell (2011) states that the history of the corporate governance discourse "*is not only a colorful historical anecdote, but it offers […] an insight into current challenges*."[65] Therefore, the presentation of the theoretical framework begins with a short view on the history of ideas to provide the discourse's origins first-hand in terms of using historical sources and not only secondary literature.

It is in the 'nature' of a public company that a variety of 'natural persons' in the sense of law may become co-owners of a 'legal person' by the acquisition of shares.[66] The more different

---

[61] Cadbury Report (1992). The Financial Aspects of Corporate Governance. Retrieved from http://www.uksa.org.uk/files/press_releases/19920727_uksa_on_cadbury.pdf., p. 3.

[62] Ampenberger, M., & Schmid, T., Kaserer, C., & Achleitner, A. (2009). Family preferences and payout policy decisions: Are there differences between family ownership and management? Munich: TU Munich, pp. 29-32.

[63] La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). *Investor protection and corporate governance. Journal of Financial Economics*, 58, 3-27, 2000, p. 4.

[64]Morck, R. K., Percy, M., Tian, G. Y., & Yeung, B. (2007). The Rise and Fall of the Widely Held Firm. R. K. Morck (ed.), A History of Corporate Governance around the World (pp. 65-148). Chicago: University of Chicago Press, p. 111.

[65] Koppell, J. (2011). Shareholder Advocacy and the Development of the Corporation: The Timeless Dilemmas of an Age-old Solution. In J. Koppell (ed.), Origins of Shareholder Advocacy (pp. 1-28). Basingstoke: Palgrave MacMillan, p. 2.

[66] Pyles, M. (2014*).* Applied Corporate Finance: Questions, Problems and Making Decisions in the Real World. Wiesbaden: Springer, pp. 159-160.

shareholders there are, the wider the share capital is scattered, and thus, the lower is the influence of individual shareholders. Conversely, the independence of the legal person, which is 'the firm', increases and thus the possibility for abuse of power by top management resulting in disregarding the contractual obligations to the disadvantage of the shareholders.[67] This power shift from shareholders to management was an unalterable fact at the beginning of the 20th century and became evident in a statement of a German banker: "*Shareholders are stupid and impudent: stupid because they hand over their money, and impudent because they then demand dividends*".[68] Therefore, already at the beginning of the 20th century, shareholders tried to increase their impact on the corporation. Mostly, however, there was originally the interest to increase dividends.[69] A system improvement regarding more efficient control and organization of management was hardly required.[70]

Corporate governance discourse has its origin in the so-called agency problem[71], which arose in the academic debate of the 1930s,[72] yielding the issue of the disparity between the shareholders' interest (the principals) and management (agents)[73] and the search for efficient management and control options.[74] Berle and Means described the shareholders' loss of control in "The Modern Corporation and Private Property" (1932). James (1933) stated this in

[67] Pyles, M. (2014). *Applied Corporate Finance: Questions, Problems and Making Decisions in the Real World.* Wiesbaden: Springer, p. 23.

[68] Schwenker,B., & Spremann, K. (2009): Management Between Strategy and Finance: The Four Seasons of Business. Berlin, Springer, p. 236.

[69] Kothari, J., & Barone, E. (2006). Financial Accounting: An International Approach. Harlow: Pearson, p. 10; Morck, R., & Yang, F. (2011). The Rise and Fall of the Bank Model: Limiting Shareholder Influence to Attract Capital. In. In J. Koppell (ed.), *Origins of Shareholder Advocacy* (pp. 187-213). Basingstoke: Palgrave MacMillan, p. 193; McCahery, J. A., & Vermeulen, E. P. M. (2008). Corporate Governance of Non-Listed Companies. Oxford: Oxford University Press, p. 17.

[70] Armour, J. H., & Cheffins, B. R. (2011). Origins of "Offensive" Shareholder Activism in the United States. In J. Koppell (ed.), *Origins of Shareholder Advocacy* (pp. 253-276). Basingstoke: Palgrave MacMillan, p. 262.

[71] Koppell, J. (2011). Shareholder Advocacy and the Development of the Corporation: The Timeless Dilemmas of an Age-old Solution. In J. Koppell (ed.), *Origins of Shareholder Advocacy* (pp. 1-28). Basingstoke: Palgrave MacMillan, pp. 13-14.

[72] Groß, K. (2007). Equity Ownership and Performance: An Empirical Study of German Traded Companies. Wiesbaden: Physica/Springer, p. 1.

[73] Yang, H., & Morgan, S. (2011). Business Strategy and Corporate Governance. Oxford: Chandos, p. 37.

[74] Groß, K. (2007). Equity Ownership and Performance: An Empirical Study of German Traded Companies. Wiesbaden: Physica/Springer, p. 2.

a review about the "The Modern Corporation and Private Property", which must be seen as the origin of the modern academic corporate governance discourse:[75]

> "*Theoretically, the paper government and the actual government can and should coincide. As a practical matter, they do not. […] in the opening third of the book Mr. Means unfolds for us a panoramic statistical picture of our two hundred largest corporations. […] They are governments by a minority or through some factual or legal devise whereby decisions for the corporations are made independently of ownership. The shareholder somewhere in the evolution of the corporate system has lost an ancient incident of his property*."[76]

According to James (1933), the growth of independent corporate "control" was undoubtedly a natural concomitant of the growth of large corporate units:

> "*It was inevitable that the power to make quickly important decisions would have to be lodged in the management, […] for the shareholders' voting machinery is too cumbersome and the shareholders are too greatly dispersed both geographically and mentally*."[77] Thus, the *"paper government and the actual government have become separated […] If the shareholders have virtually surrendered their power and 'control' is unregulated we have fundamental questions to answer as to whose interest we are to recognize in attempting some form of regulations: [...] Shall we (and can we) reestablish the shareholder as the sovereign of corporate government?*"[78]

Berle and Means' critique forms the basis of the following discussions on the constitution of the corporation until today.[79] The fundamental point of Berle and Means' critique is what Mizruchi describes as "*a usurpation […] of power by the firm's managers. […] Removed from the pressure of stakeholders, managers, for Berle and Means were now viewed as a self-*

---

[75] Mitchell, L. F. (2010). The Trouble with Boards. In F. Scott Kieff & T. A. Paredes (eds.), Perspectives on Corporate Governance (pp. 17-61). Cambridge: Cambridge University Press, p. 25

[76] James, D. (1933). The Modern Corporation and Private Property, by Adolfe A. Berle Jr. and Gardiner C. Means. *Indiana Law Journal*, 8(8), 514-516, p. 514.

[77] James, D. (1933). The Modern Corporation and Private Property, by Adolfe A. Berle Jr. and Gardiner C. Means. *Indiana Law Journal*, 8(8), 514-516, p. 516.

[78] James, D. (1933). The Modern Corporation and Private Property, by Adolfe A. Berle Jr. and Gardiner C. Means. *Indiana Law Journal*, 8(8), 514-516, p. 516.

[79] James, D. (1933). The Modern Corporation and Private Property, by Adolfe A. Berle Jr. and Gardiner C. Means. *Indiana Law Journal*, 8(8), 514-516, p. 516.

perpetuating oligarchy".[80] Also Schumpeter criticized the 'managed economy'. He established a strict differentiation between managers, capitalists, entrepreneurs, and owners.[81] For Schumpeter, the manager was only a routinier who was more or less a head of administration, in opposition to the entrepreneur as the center of innovation or the capitalist as the risk-taker.[82] For Schumpeter, the shift of power from the owner or capitalist to the manager leaves the *"firm's motor"* to the *"bureaucratic meanness."*[83] In this respect, Schumpeter criticizes that the power of owners has shifted away from the owner into the hands of 'bureaucrats', resulting in diminishing performance.

Peter Drucker, often named as the founder of management theory,[84] claimed in 1951 that

> *"a change in the legal construction of the rights of the investor should go hand in hand with the reorganization of the Board of Directors [...]. The Board should contain representatives of the investor, for after all he has a real interest in the conduct of business […]. There should be […] a number of full-time 'management auditors' […]. Such a Board would have the power to appoint a management or to remove it. It would have the final say on all major capital expenditures."*[85]

In this respect, Drucker must be seen as the first researcher who pronounces the positive effects of management monitoring[86] and that corporate governance needs professionalization. In this respect, Drucker provides a positive solution to the 'bureaucratic crisis' identified by Schumpeter.

---

[80] Mizruchi, M. (2004). Berle and Means revisited: The governance and power of large U.S. corporations. *Theory and Society*, 33, 579-617, p. 2.

[81] Schumpeter, P. (1939). *Business Cycles: A Theoretical, Historical, and Statistical Analysis of the Capitalist Process.* New York. McGraw-Hill, p. 102-109.

[82] Blaug, M., & Towse, R. (2011). Cultural Entrepreurship. In R. Towse (ed.), *A Handbook of Cultural Economics* (pp. 153-157). Cheltenham: Edward Elgar, p. 153.

[83] Englander, E., & Kaufmann, A. (2009). Executive Compensation, Political Economy, and Managerial Control: The Transformation of Managerial Incentive Structures and Ideology, 1950-2000. In T. Clarke & J. Chanlat (eds.), *European Corporate Governance: Readings and Perspectives* (pp. 340-359). New York: Routledge, p. 341.

[84] Pollock, D. (2010). *Good and Faithful Servants. Managing the Administrative Needs* (4th ed.). Washington: Xlibris, p. 7.

[85] Drucker, P. (1951). *The New Society. The Anatomy of the Industrial Order*. London: William Heinemann, pp. 322-324.

[86] Scott Kieff, F., & Paredes, T. A. (2010). The CEO and the Board. F. Scott Kieff & T. A. Paredes (eds.), *Perspectives on Corporate Governance* (pp. 96-116). Cambridge: Cambridge University Press, pp. 96-99.

In the 1970s, Milton Friedman published a short essay in the *New York Times* on corporate social responsibility, which laid the basis for the subsequent shareholder value debate. He defines the relation between the agent and the principle as follows: "*In either case, the key point is that, in his capacity as a corporate executive, the manager is the agent of the individuals who own the corporation or establish the eleemosynary institution, and his primary responsibility is to them.*"[87] Thus, Friedman, could be seen as the first person who argued that management is not the 'ruler' or the 'administrator' of business but the executive agent of its owners, laying the foundation of the principal–agent theory.[88]

Consequently, according to Friedmann (1970), the only management responsibility is simply to increase profits on behalf of the principals. Therefore, any system of corporate governance must have as its basis recognition of that imperative corporate aim, which is profitability.[89] In this respect, Friedman initiated (1970) the shareholder capitalism discussion, which finds its conceptual framework in Rappaport's (1981) concept of the economic value for shareholders[90] constituting the merger of the governance issue with the principal–agent theory.[91] Rappaport defines: "*A fundamental fiduciary responsibility of corporate managers and boards of directors is to create economic value for their shareholders*."[92] Here, the idea of economic value added (EVA) emerges as a key performance indicator for measuring corporate governance and refers to the system of managing companies and monitoring management. However, the term 'corporate governance' was coined by Brown (1976).[93] Brown's critique was the managerial control of board procedures and thus creates conflict-of-

[87] Friedman, M (1970). The Social Responsibility of Business is to Increase its Profits, *The New York Times Magazine* (23 September 1970), 33.

[88] Goergen, M.. Mallin, C., Mitleton-Kelly, E., Al-Hawamdeh, A., & Hse-Yu Chiu, I. (2010). *Corporate Governance and Complexity Theory*. Cheltenham: Edward Elgar, p. 42.

[89] Green, O. (2000). *Corporate Governance: Great Expectations, in: Corporate Governance & Corporate Control*. In S. Sheikh & W. Rees (eds.*), Corporate Governance & Corporate Control* (pp. 143-160). London: Cavendish, p. 144.

[90] Wentges, P. (2002). *Corporate Governance und Stakeholder-Ansatz: Implikationen für die betriebliche Finanzwirtschaft*. Wiesbaden: DUV, p. 77.

[91] Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., Colle, S. (2010). *Stakeholder Theory: The State of the Art.* Cambridge: Cambridge University Press, p. 128.

[92] Rappaport, A. (1981). Selecting Strategies that Create Share. *Harvard Business Review*, 59, 139-149, p. 148.

[93] Brown, C. C. (1976). *Putting the Corporate Board to Work*. New York: Free Press.

interest situations. Therefore, he stated the need for board independence from management interests[94] that find its expression in many regulations, laws, and self-commitments.

1.2.2. Theoretical Basis of Corporate Governance: Agency Theory

The principal–agent theory or agency theory (sometimes also called principal–agent model) is an upcoming model from the so-called New Institutional Economics. This theory is established in economics, sociology, and political science.[95] The basis of the theory is the principal–agent problem between the principal as 'employer' and the executive officer as an agent.[96] The latter usually has a knowledge advantage.[97] Thus, information asymmetry is a constituent characteristic of the principal–agent relationship, which can be used in different ways either in favor of or as a disadvantage to the principal.[98] The principal–agent theory offers a model to explain the actions of people and institutions in a hierarchy and the cost/benefit-effective design of contracts.

Jensen and Meckling (1976) are co-founders of the principal–agent theory.[99] They based their model on the theory of incomplete contracts by Coase. He describes "The Nature of the Firm" (1937) as a hierarchical system of contracts (contract goods) and as a result of transaction costs, which occur in the use of markets (transaction goods). This model of the firm as a system of contracts with specific transaction costs shows the following structure-defining problems.[100]

---

[94] Rappaport, A. (1981). Selecting Strategies that Create Share. *Harvard Business Review*, 59, 139-149, p. 148.

[95] Tang,. S. (2011). *A General Theory of Institutional Change*. Milton Park: Routledge, p. 1.

[96] Hallock, K. F. (1999). Dual Agency: Corporate Boards with Reciprocally Interlocking Relationships. J. Carpenter & D. Yermack (eds.), *Executive Compensation and Shareholder Value: Theory and Evidence* (pp. 55-76). Dordrecht: Springer Science, p. 65.

[97] Holden, N., & Glisby, M. (2010). *Creating Knowledge Advantage: The Tacit Dimensions of International Competition and Cooperation*. Copenhagen: Copenhagen Business School Press, p. 215.

[98] Dunn, M. (2013). *Inside the Capitalist Firm: An Evolutionary Theory of the Principal-Agent-Relation*. Potsdam: Potsdam University Press, pp. 119-120.

[99] Malla, P. B. (2010). *Corporate Governance: Concept, Evolution and History*. London: Routledge, p. 30.

[100] Berrar, C. (2001): *Die Entwicklung der Corporate Governance in Deutschland im internationalen Vergleich* (Dissertationsschrift an der Ludwig-Maximilians-Universität Munich). Baden-Baden: Nomos, pp. 29-31; Geiersbach, K. (2011). *Der Beitrag Der Internen Revision Zur Corporate Governance.* Wiesbaden: Gabler, p. 34.

(1) Hidden Properties: Before signing the contract (ex-ante) the agent is relatively unknown to the principal so that his performance and his intentions remain hidden.[101]

(2) Hidden Action: If the contract is closed, the agent has a margin of maneuver because the agent's actions cannot be completely observed by the principal (information asymmetry).[102] The agent can use this basic problem for discretionary actions to increase his advantage on the costs of the principal.

(3) Hidden Information or Hidden Characteristics: Even if the principal indeed can completely observe the agent's actions, a problem of evaluating the quality of results may arise.[103] Concerning transaction goods, characteristics of a commodity are not observable or unknown.[104]

(4) Hidden Intention: Even if the principal can completely observe the agent's actions and almost all relevant information is available to evaluate the quality of the results of the agent's actions, problems can occur in that the principal does not recognize hidden intentions. As a consequence, hold-up problems[105] and thus costs may occur. In the case of exchange of goods, only hidden properties can be an issue. Concerning contract goods, hidden information and hidden action as the result of hidden intentions is a potential hazard.[106]

These structure-defining problems of principal–agent relationships can be subsumed with the term 'information asymmetries'.[107] Asymmetric information is an economics concept and

---

[101] Berndt, M. (2002). G*lobal Differences in Corporate Governance Systems: Theory and Implications for Reforms*. Wiesbaden: DUV, pp. 22-23.

[102] Leitner, S. (2012). *Information Quality and Management Accounting: A Simulation Analysis of Biases in Costing Systems.* Heidelberg: Springer, p. 46.

[103] Leitner, S. (2012). *Information Quality and Management Accounting: A Simulation Analysis of Biases in Costing Systems.* Heidelberg: Springer, pp. 46-47.

[104] Berndt, M. (2002). G*lobal Differences in Corporate Governance Systems: Theory and Implications for Reforms*. Wiesbaden: DUV, p. 23.

[105] In economics, a hold-up situation occurs when two contractors establish a business relationship, in which the seller (agent) is obliged usually to make investments. Since the exchanged commodity cannot be completely described, neither the agent's investment costs nor the principal's willingness to pay can be determine exactly. Therefore, only an incomplete contract occurs which contains cost risks for both parties.

[106] Hauswirth, I. A. (2006). *Effective and Efficient Organisations?: Government Export Promotion in Germany and the UK from Organisational Economics Perspective*. Heidelberg: Physica, pp. 42-42.

[107] Chhotray, V., & Stoker, G. (2009). *Governance Theory and Practice: A Cross-Disciplinary Approach*. Basingstoke: Palgrave MacMillan, p. 61.

refers to the condition in which two parties must enter into a contract without the same information.[108] To deal with problems arising from asymmetric information, the following mechanisms have been developed to mitigate or even fix the principal–agent problem:[109]

(1) Bureaucratic control establishes a hierarchic control regime to exclude inefficiencies due to hidden intentions, information, and characteristics.[110]

(2) Information Systems establish information-based systems to control deviations in defined, measurable values to control the quality of the agent's results.[111]

(3) Incentive Systems: Incentives are an instrument to achieve rule-compliant behavior on a voluntary basis.[112]

(4) Reputation: Reputation helps to consider how someone will behave in the future. This predictability has the advantage that decisions are made easier and costs can therefore be saved. Thus, the build-up of reputation is a means of 'signaling'. which is transfers information to the other party and resolves information asymmetries.[113] Reputation becomes effective even before a principal–agent relationship is established.[114]

(5) Trust: Confidence in an agent can be caused by a principal's competence expectancy in the agent's signaled or experienced expertise or by the expectation that the agent has no hidden intentions that may incur costs for the principal. Contrary to reputation,

---

[108] Dietl, H. (2003). *Capital Markets and Corporate Governance in Japan, Germany and the United States*. London: Routledge, pp. 12-13.

[109] Mitchell, L. E. (1995). *Progressive Corporate Law*. New York: Westview Press, p. 177; Boorsma, P. B., Aarts, K., & Steenge, A. E. (1997). Public Priority Setting: Rules and Costs. Amsterdam: Springer, p. 63.

[110] Williams, C. C. (2006). *The Hidden Enterprise Culture: Entrepreneurship in the Underground Economy* (6th ed.). Cheltenham: Edward Elgar, pp. 191-192.

[111] Hall, J. (2008). *Accounting Information Systems*. Mason: South-Western, pp. 2-4.

[112] Aluchna, M., & Aras, G. (2016). *Transforming Governance: New Values, New Systems in the New Business Environment*. Milton Park: Routledge, pp. 12-16.

[113] Houston, R., & Ferris, S. P. (2015). Corporate Political Connections and the IPO Process: The Benefits of Politically Connected Board Members and Managers. In K. John, A. Makhija & S. P. Ferris (eds.), I*nternational Corporate Governance: Advances in Financial Economics Vol. 18* (pp. 125-164). Bingley: Emerald, p. 127.

[114] Schillhofer, A. (2003). *Corporate Governance and Expected Stock Returns: Empirical Evidence from Germany*. Wiesbaden: DUV, p. 10.

> trust arises in established relations by iterative experience with an agent or by settlements on common values and norms.[115]

The good corporate governance discourse aims at solving the principal–agent problem by introducing a self-regulating system of contracts to avoid bureaucratic control and information asymmetries, which will be explained in the following section.

1.2.3. The Discourse on 'Good Corporate Governance'

Corporate governance discourse aims at defining a self-regulating system of contracts to avoid agency problems resulting from distant or absent shareholders or owners who contract executives to act in their interests.[116] The problem of managerial self-interest is widely discussed in the framework of managerial (power) theory with the basic assumption that management compensation is often excessive, does not correlate to performance and increases the company's value and thus the owner's investment.[117]The managerial (power) theory states that the agent (the executive) will serve his interests rather than those of the owner or shareholder (principal). To avoid such issues, the principal must incur 'agency costs' that arise from the necessity of creating incentives that align the executive interests with those of the shareholder, and costs incurred for monitoring the executive's conduct to prevent the abuse of owner interests.[118]

Agency theorists do not explore the conduct, relationships, and attitudes that generate board effectiveness. Instead, they examine the effectiveness of various mechanisms designed to canalize the executive's self-interest so that shareholder interests are served.[119] Thus, the agency theory is highly influential in shaping the reform of corporate governance systems in terms of board-based mechanisms and external, market-based governance mechanisms.[120]

---

[115] Renz, P. S. (2007) *Project Governance: Implementing Corporate Governance and Business Ethics in Nonprofit Organization.* Heidelberg: Physica, pp. 159-160.

[116] Johnston, A. (2009). *EC Regulation of Corporate Governance.* Cambridge: Cambridge University Press, p. 228.

[117] Rappaport, A. (1981). Selecting Strategies that Create Share. *Harvard Business Review,* 59, 139-149, p. 148.

[118] Henry, T. (2010). Does Equity Compensation Induce Executives to Maximize Firm Value or Their Own Personal Wealth?. In Cheryl R. Lehman (ed.), *Ethics, Equity, and Regulation*: *Advances in Public Interest Accounting, Volume 15* (pp.111 - 139). Bingley: Emerald, p. 113-115.

[119] Firth, M. A., & Rui, O. M. (2012). Does One Size Fit All? A Study of the Simultaneous Relations Among Ownership, Corporate Governance Mechanisms, and the Financial Performance of Firms in China. In S. Boubaker, B. D. Nguyen, & D. K. Nguyen, (eds), *Corporate Governance: Recent Developments and New Trends (*pp. 29-58). Heidelberg: Springer, p. 30.

[120] Solomon, J. (2007). *Corporate Governance and Accountability.* Chichester: Wiley, p. 305.

Governance relies on its effectiveness of the transparency of financial information and the transparency of management decisions so that external 'market' mechanisms can be effective through disciplinary effects on the company and thus on executive performance.[121] In addition to these external market monitoring mechanisms, the agency theory discourse has shaped the internal boardroom' reform. Maybe the most significant contributions in this context are in the form of the widespread adoption of performance-based executive compensation schemes,[122] which follows directly from the assumption that executive self-interest must be aligned with the shareholders' interests, for example, by value-based key performance indicator systems rewarding an increase of EVA.[123]

Furthermore, the agency theory's influence can be seen in the promotion of corporate governance codices to strengthen the 'control' role of the supervisory board. In many countries, separation of the roles of chairman and chief executive as well as the 'independence' of non-executive directors are demanded by law; the lead role of the non-executives on audit, remuneration, and nomination committees are increasingly strictly defined, which is all consistent with the agency theory assumption that shareholders' or owners' interests are potentially at risk in the absence of intensive independent non-executive monitoring. In this sense, CG is understood, in the context of institutional economics, as a corporate 'constitution,' which is to bring about a balance of interests among stakeholders.[124]

In the last 20 years, corporate governance codes were developed in many countries not as legal requirements, but as recommendations for good corporate governance benchmarks.[125] However, parts of these recommendations have a law-like character, because often they are used in case law, in cases of monitoring and control systems failure, as a standard of good corporate governance for judging negligence of proper supervision and prudent

---

[121] Berghe, A. (2012). International Standardisation of Good Corporate Governance: Best Practices for the Board of Directors (2nd ed.). Dodrecht, Springer Science, p. 5.

[122] Bratton, 2012, ibedem, pp. 111-115.

[123] Zarbafi, E. M. (2011). *Responsible Investment and the Claim of Corporate Change: A Sensemaking Perspective*. Wiesbaden: Springer, pp. 61-63.

[124] Blair, M. M. (1995): *Ownership and control*. Washington, DC: Brookings Institute; Horrigan, B. (2012). *Corporate Social Responsibility in the 21st Century: Debates, Models and Across Gouvernment, Law and Business*. Cheltenham: Edward Elgar, p. 42.

[125] Dine, J. & Koutsias, M. (2013). *The Nature of Corporate Governance*. Cheltenham: Edward Elgar. p. 63; Hopt, K. J. (2013). Some Corporate Governance Thoughts from Europe. In P. Davies, P. L. Davies, K. J. Hopt, R. Nowak & G. Solinge (eds.), *Corporate Boards in European Law: A Comparative Analysis* (pp. 531-562). Oxford: Oxford University Press, p. 549.

management.[126] In every country, the basis of corporate governance is mainly the Companies Law and the Stock Corporation Act.[127] The main national difference is the separation of execution and supervision.[128] Some countries have established a one-tier system with one board for the direction of the company's business and the supervision of management activities on behalf of the shareholders; other countries have established a two-tier system.[129] German law is one of the few examples that prescribe a two-tier system so that the executive board and supervisory board are separate bodies with different rights and duties. [130] In other countries, the one-tier system is common (e.g., in the UK and US),[131] such as supervision and direction of the company being combined into one body, which is the board of directors. In Germany, the legal obligation of the supervisory board is to control and monitor management (executive board).[132] Furthermore, the supervisory board depends on consent with employee representatives, which have (provided the threshold of the number of employees is met) a third or half of the number of seats on the supervisory board, reflecting the consensus orientation of the German economic constitution.[133] Additionally, the supervisory board has audit responsibilities, particularly concerning annual and financial statements as well as obligations to report to the shareholders' meeting (general meeting).[134] The supervisory board members as the shareholder representatives are elected by the general meeting.[135] The

---

[126] Zhao, Y. (2011). *Corporate Governance and Directors' Independence*. Alphen: Kluwer Law, pp. 42-44.

[127] Mäntysaari, P. (2012). *Organising the Firm: Theories of Commercial Law, Corporate Governance and Corporate Law*. Berlin: Springer, p. 1.

[128] Berghe, A. (2012). I*nternational Standardisation of Good Corporate Governance: Best Practices for the Board of Directors* (2nd ed.). Dodrecht, Springer Science, p. 60.

[129] Plessis, J. P., Großfeld, B., Luttermann, C., Saenger, I., Sandrock, O., & Casper, M. (2012). *German Corporate Governance in International and European Context* (2nd ed.). Heidelberg: Springer. pp. 8-10.

[130] Girasa, R. (2013). *Corporate Governance and Finance Law*. New York: Palgrave MacMillan, pp. 97-98.

[131] Vernimmen, P., Quiry, P., Dallocchio, M., Le Fur, Y. & Salvi, A. (2014). *Corporate Finance: Theory and Practice*. Chichester: Wiley, p. 788.

[132] Roth, M. (2013). Corporate Boards in Germany. In P. Davies, P. L. Davies, K. J. Hopt, R. Nowak & G. Solinge (eds.), *Corporate Boards in European Law: A Comparative Analysis* (253-366). Oxford: Oxford University Press, p. 284.

[133] Greenfield, K. (2006). *The Failure of Corporate Law: Fundamental Flaws and Progressive Possibilities*. Chicago: University of Chicago Press, pp. 29-30.

[134] Talaulicar, T. (2012). Corporate Governance and Initial Public Offerings in Germany. In A. Zattoni & W. Judge (eds.), *Corporate Governance and Initial Public Offerings: An International Perspective* (pp. 141-166). Cambridge: Cambridge University Press, p. 141.

[135] Conyon, M. J., & Schwalbach, J. (2009). Corporate Governance, Executive Pay and Performance in Europe. In J. Carpenter, & D. Yermack (eds.), *Executive Compensation and Shareholder Value: Theory and Evidence* (pp. 13-34). Dordrecht: Springer Science, p. 16.

supervisory board dismisses and appoints executive directors.[136] On the other hand, the executive board, in turn, is also required to report to the general meeting, and not only to the supervisory board. Additionally, not only the supervisory board but also the executive is allowed to convene the general meeting, which is very different from the Anglo–Saxon one-tier system where the board of directors as a whole is entitled to convene the annual meeting.[137]

The so-called 'Anglo–Saxon model' relies on a single-tiered board of directors that is normally dominated by shareholder-elected, non-executive directors.[138] Within this unitary system, many boards include some former executives from the company as ex officio board members to outnumber executive directors and hold key posts in particular in the compensation and audit committees.[139] However, the United Kingdom and the United States differ in one critical aspect. In the US, the dual role of the CEO is frequently a reality, whereas, in the United Kingdom, the CEO generally does not serve also as chairman of the board.[140]

To sum up, no unified or common good corporate governance system, theory, component model, or regulation exists. Every country has established its own system of good corporate governance. Substantially distinct characteristics can be identified concerning the dominant stakeholders (shareholders or other stakeholders), the role of insiders/outsiders, and the preference for the financial market or corporate relations in general. Accordingly, research applies distinctions such as stakeholder model vs. shareholder model, outsider vs. insider model, and market-based model vs. relations-based model.[141] In this framework, every country-specific good corporate governance system may be described as biased in one or the other direction. However, 'good' can only be applied in the sense of the conformity of a

---

[136] Tremml, B., & Buecker, B. (2002). Recognized Forms of Business Organization.In M. Wendler, B. Tremml & B. J. Buecker (eds), *Key Aspects of German Business Law: A Practical Manual* (2nd ed.) (pp. 7-30). Berlin: Springer, p. 18.

[137] Wei, Y. (2013). *Comparative Corporate Governance: A Chinese Perspective*. The Hague: Kluwer, p. 16.

[138] OECD (2011). *Corporate Governance Board Practices Incentives and Governing Risks*. Paris: OECD, p. 77

[139] Monks, R. A. G., & Minow, N. (2011). *Corporate Governance* (5th ed.). Chichster: Wiley, p. 304.

[140] Conyon, M. J., & Schwalbach, J. (2009). Corporate Governance, Executive Pay and Performance in Europe. In J. Carpenter, & D. Yermack (eds.), *Executive Compensation and Shareholder Value: Theory and Evidence* (pp. 13-34). Dordrecht: Springer Science, p. 15.

[141] Dignam, A., & Galanis, M. (2016). *The Globalization of Corporate Governance*. Milton Park: Routledge, pp. XI, 60, 78, 88, 60, 147.

company's degree of compliance to country-specific codes.[142] Consequently, the examination of good corporate governance can only be executed in referring to a country-specific governance system.

1.2.4. The German Corporate Governance Code as a Good Corporate Governance System

The subject of good corporate governance has gained importance in Germany since the 1990s. In 1998 the German government passed the Law of Control and Transparency (KonTraG) which was the first actual corporate governance law in Germany.[143] The liability of directors, supervisors, and auditors was extended. The core of this law is a provision forcing companies to introduce and operate a company-wide early warning system and to publish statements about the company's risks and risk structure in a special report attached to the annual report.

In 2000 the federal government set up a government commission on the modernization of company law due to the bankruptcy of one of Germany's largest construction companies.[144] Among other things, this commission has recommended developing a 'Best Practice Code' for German companies. For this end, the 'Government Commission on the German Corporate Governance Code' was formed as a self-regulation measure of the economy in 2001. The Commission is funded by the private sector and completely independent in its decisions. The government cannot give instructions for the design of the Code.[145]

The Commission does not include any representative of the government or politics. The Commission released the "German Corporate Governance Code" in 2002. Due to the subsequent publication in the *Federal Law Gazette*[146], the declaration obligation in Section 161 in the Stock Corporation Act applies for listed companies. The supervisory and executive

[142] Dignam, A., & Galanis, M. (2016). *The Globalization of Corporate Governance*. Milton Park: Routledge, p. 48.

[143] Lütz, S. (2009). The Finance Sector in Transition: A Motor for Economic Reform?.In K. Dyson & S. Padgett (eds.), *The Politics of Economic Reform in Germany: Global, Rhineland Or Hybrid Capitalism* (pp. 26-42). London: Routledge, p. 37.

[144] Dignam, A., Galanis, M. (2016). The Globalization of Corporate Governance (2nd ed.). Milton Park: Routledge, p. 342.

[145] Plessis, J. P., Großfeld, B., Luttermann, C., Saenger, I., Sandrock, O., & Casper, M. (2012). *German Corporate Governance in International and European Context* (2nd ed.). Heidelberg: Springer. pp. 31-39.

[146] Federal Law Gazette (Bundesgesetzblatt)

boards of corporations are obliged annually to explain in the framework of the comply-or-explain policy[147] whether

(1) the Code is adopted as a whole (so-called consent or inheritance model),

(2) the Code is rejected as a whole (so-called disclaimer or rejection model),

(3) only parts of the Code are followed (so-called qualified deviation explanation or selection solution).[148]

The compliance declaration must be made permanently available to the shareholders and all other interested parties on the company's website. Thus, the observance of the principles has a direct impact on the company's public image, its relationship with shareholders, and finally the capital market. In 2009, the Code was adapted to the changes by the Management Board Compensation Adequacy Act. Further changes were concerning the board's obligation regarding the 'company's interests', diversity in the composition of the supervisory board, in particular, the participation of women on supervisory boards, and the independence of consultants serving the board.[149] In 2010, further significant changes were adopted affecting the professionalizing of the supervisory board.[150] In 2013, the Commission decided to structurally revise the Code and also deal with the issues of management board remuneration. The most important point is the recommendation to limit the board remuneration, including their variable parts.[151]

The German Corporate Governane Code is a reaction to the criticisms of the German corporate 'constitution' expressed particularly from international investors such as, for example, the lack of transparency and inadequate focus on shareholder interests and board

[147] Comply-or-explain policy is a regulatory approach in the field of financial supervision and corporate governance used in Germany, Austria, the United Kingdom, the Netherlands and other countries.

[148] Plessis, J. P., Großfeld, B., Luttermann, C., Saenger, I., Sandrock, O., & Casper, M. (2012). *German Corporate Governance in International and European Context* (2nd ed.). Heidelberg: Springer, pp. 33-34.

[149] Roth, M. (2013). Corporate Boards in Germany. In P. Davies, P. L. Davies, K. J. Hopt, R. Nowak & G. Solinge (eds.), Corporate Boards in European Law: A Comparative Analysis (pp. 253-366). Oxford: Oxford University Press, p. 292.

[150] Roth, M. (2013). Corporate Boards in Germany. In P. Davies, P. L. Davies, K. J. Hopt, R. Nowak & G. Solinge (eds.), Corporate Boards in European Law: A Comparative Analysis (pp. 253-366). Oxford: Oxford University Press, p. 292.

[151] Janocha, M. (2014). *Vergütung mittels Bonusbanken: Eine agency-theoretische Perspektive*.Wiesbaden: Gabler, p. 2.

professionalism, diversity, and independence.[152] The intention of the German Corporte Governance Code is to help make the governance rules transparent for both national and international investors. Confidence in the management and supervision of German companies and thus in the German capital market should be strengthened. The aim is also to unify and standardize the measures concerning the fulfillment of good corporate governance.[153] The Commission explains that the German Corporate Governance Code "*contains internationally and nationally recognized standards of good and responsible corporate governance*" [154], aiming at committing the management and supervisory board to ensure the company's existence and the creation of sustainable value to promote the trust of national and international investors.[155]

In the United States, the Treadway Commission COSO control models (1992) and COSO ERM (2004) are the bases of good corporate governance.[156] Additionally, since 2002, compliance with the Sarbanes-Oxley Act (SOX) is mandatory for all companies listed on a US stock exchange. State laws directly govern corporations. Individual rules for corporations are based on the corporate charter and corporate bylaws.[157] Shareholders cannot change the corporate charter although they can initiate corporate bylaws changes.[158] The main difference between the Anglo–Saxon corporate governance and the German system is seen by the respective law on stock companies determining the basic institutional structure of corporate governance. The main nominal differences can be seen in the one- or two-tier system. The latter system separates definitely the executive and supervisory functions whereas one-tier systems in countries such as Switzerland or the United States do not regulate the institutional

[152] Arbeitskreis Externe und Interne Überwachung der Unternehmung der Schmalenbach-Gesellschaft für Betriebswirtschaft (2016). Die Zukunft des Deutschen Corporate Governance Kodex. *Der Betriebswirt*, 7/2016, 395-401, p. 395.

[153] Rode, O. (2009). *Der deutsche Corporate-Governance-Kodex: Funktionen und und Durchsetzungsmechanismen im Vergleich zum britischen Combined Code*. Frankfurt: Lang, p. 110.

[154] German Government Committee (2015). German Corporate Governance Code. German Government: Berlin, p. 1.

[155] German Government Committee (2015). German Corporate Governance Code. German Government: Berlin, p. 1.

[156] Bainbridge, S. M. (2016). *Corporate Governance After the Financial Crisis*. Oxford: Oxford University Press, p. 167.

[157] Peter, A. (2008*). Der US-amerikanische Sarbanes-Oxley Act of 2002: Seine Auswirkungen auf die an der New York Stock Exchange notierenden österreichischen Aktiengesellschaften*. Graz: Universität Graz, p. 242.

[158] Peter, A. (2008*). Der US-amerikanische Sarbanes-Oxley Act of 2002: Seine Auswirkungen auf die an der New York Stock Exchange notierenden österreichischen Aktiengesellschaften*. Graz: Universität Graz, p. 242.

separation of both functions. However, in practice, it is often the case, particularly in high-growth companies such as Apple and Google.[159] However, in general, the German Corporate Governance Code follows the UK model in the comply-or-explain policy. The German Corporate Governance Code is a best practice in terms of a soft law focusing its main parts on recommendations; however, companies must explain why they do not comply with the best practice recommendations in their annual compliance declaration.[160] Thus, companies are free to customize their corporate governance system in the framework of the governance code recommendations. Yet a trend of a more or less full compliance with the code is observable in the last years, which some observers explain with the shareholder pressure, leading to a high conformity with the recommendations.[161] However, the empirical part of this research indicates that this is not the case in Germany where the code compliance has reached a high degree, which has not changed significantly from 2010 to 2014.

1.3. Summary of Governance Theory and Discourse

Since the publication of Berle and Means' (1932) 'classic', the vast majority of all economic works assumes at least a partial conflict of interest between owners and managers and suggests therefore appropriate institutions of management control.[162] Apart from the owners of the company, there are other stakeholders such as employees, debt providers, and creditors, which are interested in the effective control of top management, because an opportunistically acting or simply incompetent management can jeopardize their claims to the company such as, for example, the claims of lenders on interest and principal payments in the event of insolvency as well as endangered rights of employees to outstanding salary payments, etc.[163] Different claims accordingly follows an, at least, partial mutual interest in efficient management control.

---

[159] Daidj, N. (2016). *Strategy, Structure and Corporate Governance: Expressing Inter-Firm Networks and Group-Affiliated Companies*. Milton Park: Routledge, pp. 180-187.

[160] Arbeitskreis Externe und Interne Überwachung der Unternehmung der Schmalenbach-Gesellschaft für Betriebswirtschaft (2016). Die Zukunft des Deutschen Corporate Governance Kodex. *Der Betriebswirt*, 7/2016, 395-401, p. 396.

[161] Arbeitskreis Externe und Interne Überwachung der Unternehmung der Schmalenbach-Gesellschaft für Betriebswirtschaft (2016). Die Zukunft des Deutschen Corporate Governance Kodex. *Der Betriebswirt*, 7/2016, 395-401, p. 398.

[162] 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.

[163] Cp. Section 4.1 in this study.

However, different stakeholders have different interests and, thus, differ in the question of a more direct control of the management or a more indirect control in the form of an appropriate supervisory authority.[164] It should not be overlooked that the mentioned stakeholder groups are likely to be interested primarily in the settlement of their claims, but in contrast to the owners, not necessarily in the maximization of the company's market value.[165] Furthermore, it is to question to what extent an institution or a group of agents has a control incentive or a control motivation. Furthermore, it must be asked how control and disciplinary instruments should be configured in an institution. And, it is to question whether only strong control incentives in combination with comprehensive control options can cause effective management control.[166]

In this principal–agent framework, the corporate governance discourse and the introduction of diverse corporate governance codes in several countries have attempted to provide further solutions to the principal–agent problem. Usually, corporate governance refers to the system of managing and monitoring companies with a specific focus on management control by shareholder or owner representatives in the form of non-executive directors. The objective of corporate governance is to balance the 'inner' triangle of non-executive directors, auditors and executive directors.[167] This includes rules for operational functions pursued by supervisory function of non-executive directors and executive directors. The corporate governance's objective is, accordingly, to define a purposeful structure and composition of the board as a body by means of procedural rules and committee formation. This takes place within the framework of voluntary commitments, laws, and regulations. Thus, corporate governance defines a system of responsibilities, obligations, rights, and monitoring routines to fulfill the interests of the capital market, respectably, the shareholders or owners and other stakeholders and to balance external claims and the company's operational requirements. Accordingly, the OECD Principles of Corporate Governance recommends rules concerning shareholder rights, the role of stakeholders, disclosure rules, transparency rules, and responsibilities of the board.

---

[164] Mansell, S. F. (2013). *Capitalism, Corporations and the Social Contract: A Critique of Stakeholder Theory*. Cambridge: Cambridge University Press, p. 39.

[165] Berndt, M. (2002). *Global Differences in Corporate Governance Systems: Theory and Implications for Reforms*. Wiesbaden: DUV.

[166] Roberts, J. (2004). *The Modern Firm: Organizational Design for Performance and Growth*. Oxford: Oxford University Press; Kräkel, M. (2004). *Organisation und Management* (2nd ed.). Tübingen: Mohr Siebeck, pp. 290-333; Borckman, P., Lee, H. S., & Salas, J. M. (2016). Determinants of CEO compensation: Generalist–specialist versus insider–outsider attributes. *Journal of Corporate Finance*, 39, 53-77.

[167] Mäntysaari, P. (2005). *Comparative Corporate Governance: Shareholders as a Rule-Maker*. Berlin: Springer, p. 97.

The principal–agent problem has defined the institutional and behavioral economics behind the corporate governance theory, while the corporate governance discourse has led to a multitude of solutions to cope with the principal–agent problem. However, it is a multitude of different models and codes. As such, every corporate governance code and further regulations provided by different legal systems and regulations lead to a country-specific solution of principal–agent problems so that every corporate governance code must be seen as a country-specific system of good corporate governance which will be also dicussed in the following chapter.

Furthermore, the question arises regarding the essential elements of good corporate governance. Here, the empirical research in this field should provide some answers. Consequently, the following chapter discusses and analyzes prior empirical research to identify the research mainstream and the methods applied as well as the results concerning the effects of corporate goverance characteristics on firm performance and shareholder/stakeholder interest fulfillment.

2. PRIOR EMPIRICAL RESEARCH ON THE EFFECT OF GOVERNANCE ON FIRM PERFORMANCE

The following chapter discusses the scope and the results of empirical research between 1986 and 2015. It is noted that there is a change in the number of studies with positive correlations between firm performance and good corporate governance and studies measuring neutral or negative impacts. It appears as if a coincidence exists between the tightening of existing laws, the introduction of corporate governance codices, and the decrease in the number of studies with positive correlations (see Figure 1).

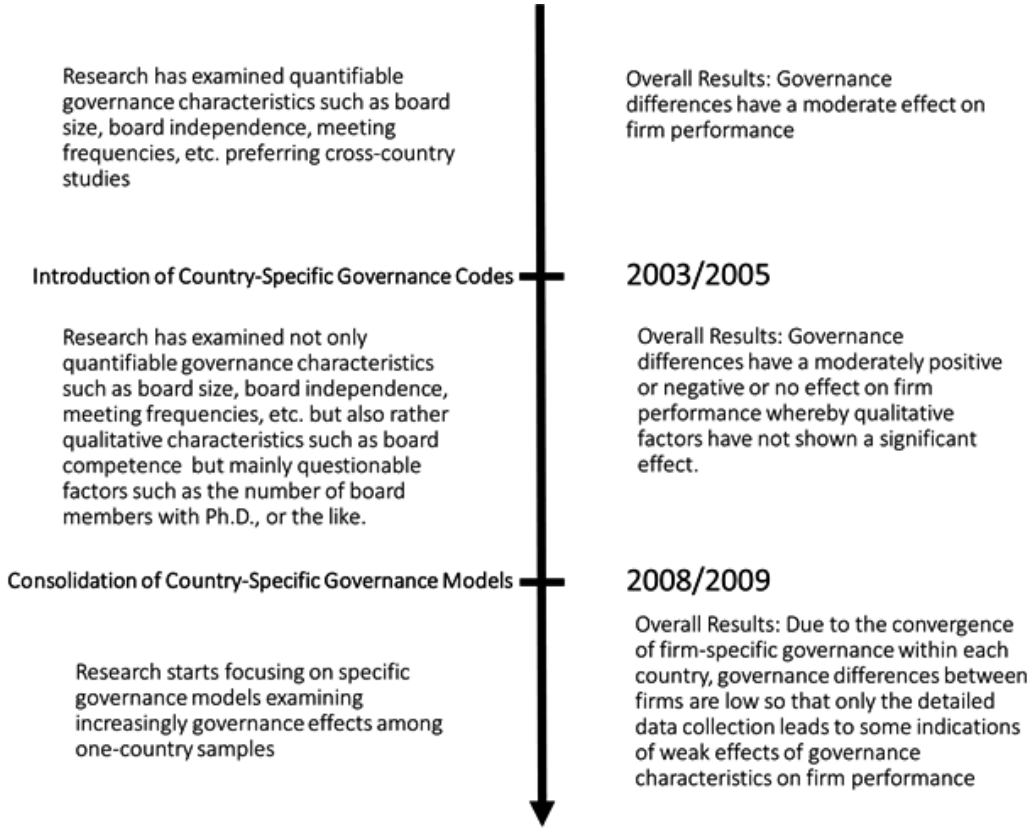


Figure 1. Development of Empirical Governance Research between 1995 and 2015 (Rough Overview)

Source: Author's presentation based on the results of the following literature review.

This could be explained by the fact that the differences between companies with good corporate governance and those without corporate governance dwindle, since all companies are now subject to tighter regulations of governance. Thus, the measurable impact on firm

performance of former effective factors is decreased because the differences in firm-specific corporate governance disappear.[168]

Well-governed firms should have a higher firm performance and value. Here, the question arises regarding the definitions of performance and value. Friedman and Drucker offer helpful testimonials. According to Friedman, it is in the responsibility of a company's management "*to use the resources to generate income and thus delivering benefit for owners, because they are the stakeholder group which really took over risk. Due to taking risks, the reward is the return on equity for which managers are employed by owners*".[169] Managers are employed to increase the owners' profits.[170] Contrary to Friedman (1970), Drucker (1993) states that profit is not a goal but "*a measurement of how well the business discharges its functions in serving market and customer*".[171] Thus, Drucker and Friedman define implicitly and explicitly three main metrics to measure whether management fulfills its functions: profit, return on equity, and market success. In terms of financial research, the appropriate metrics are *revenue* as a measure for 'market success', *net income, earning per share,* and *return on equity* for 'profit'. According to these reflections, the main benchmark for evaluating empirical studies in this paper is the application of such basic metrics to measure performance.

Due to the objective, which is the accumulation and discussion of research findings concerning the link between firm performance and corporate governance, the application of these 'meta'-metrics may be seen as basic requirements to define performance in the context of corporate governance in the sense of the theory of the firm.[172] The following literature review is based on academic journal databases from Sage, Elsevier, Wiley, EBSCO, and Tayler Francis. Only articles from A and B journals, according to the VHB JOURQUAL ranking, are included. Additionally, only empirical studies conducted in 'western advanced' economies are used. The keywords for identifying relevant articles are 'firm performance', 'financial performance', 'corporate governance' and 'impact'.

---

[168] Bainbridge, S. M. (2016). *Corporate Governance After the Financial Crisis*. Oxford: Oxford University Press, pp. 90, 269.

[169] Friedman, M (1970). The Social Responsibility of Business is to Increase its Profits, *The New York Times Magazine (*23 September 1970), 32-33, p. 32.

[170] Friedman, M (1970). The Social Responsibility of Business is to Increase its Profits, *The New York Times Magazine (*23 September 1970), 32-33, p. 32.

[171] Drucker, P. (1993) *Management: Tasks, Responsibilities, Practices.* New York: Harper & Row., p. 64, 98-99.

[172] Brigham, E., & Ehrhardt, M. (2014). *Financial Management: Theory & Practice*. Mason: South-Western, p. 592

2.1. Corporate Governance and Firm Performance Research Findings (prior to 2003)

Several studies until 1998 indicate that companies with good corporate governance have better long-term performance for shareholders or in terms of general business performance.[173] This is just before the intensification of good corporate governance rules and laws marked by the Blue Ribbon Committee (1999), the Ramsay Report (2001), the Smith Committee (2003), the Sarbanes-Oxley Act (2002), the German Law of Control and Transparency (1998), the German Corporate Governance Code (2002), and several other initiatives, laws, and codices in several other global leading economies. Shleifer and Vishny (1997) assert that 'better'-governed firms have better operating performance because effective governance reduces control rights conferred by shareholders and creditors. This would increase the probability that managers invest in positive net present value (NPV) projects and lesser capital costs, which leads to improved performance.[174] Gregory and Simms (1999) affirm that effective corporate governance is important, as it helps to attract lower-cost investment capital through the improved confidence of investors.[175]

The corporate governance debate in the US in the 1990s has emphasized the need for better governance.[176] Governance regulations in the US, such as the Sarbanes-Oxley Act (2002), were to improve corporate governance in the US. Evidence for the US strongly suggests that at firm's level, better governance leads not only to improved rates of return on equity (ROE) and higher valuation but also to higher profits and sales growth,[177]supported by empirical

[173] Jensen, M. (1986). The Agency Costs of Free Cash Flow. *American Economic Review*, 76, 326-329; Hermalin, B., & Weisbach, M. S. (1991). The effects of board composition & direct incentives on firm performance. *Financial Management*, 20(4), 101-112; Byrd, J., & Hickman, K. (1992). Do Outside Directors Monitor Managers? Evidence from Tender Offer Bids. *Journal of Financial Economics*, 32, 195-221; Lipton, M., & Lorsch, J, (1992). A Modest Proposal for Improved Corporate Governance', *Business Lawyer*, 48, 59–77; Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems, *Journal of Finance*, 48(3), 831-880; Brickley, J. A., Coles, J. L., & Terry, R. L. (1994). Outside Directors & the Adoption of Poison Pills. *Journal of Financial Economics*, 35, 371-390; Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *Journal of Finance*, 52(2), 737-783; Eisenberg, T., Sundgren, S., & Wells, M. (1998). Larger Board Size and Decreasing Firm Value in Small Firms. *Journal of Financial Economics*, 48, 35-54.

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

[175] Gregory, H. J., & Simms, M. E. (1999). Corporate Governance: What it is and why it matters? 9th International Anti-Corruption Conference, 10-15 October 1999, Durban, South Africa.

[176] Sarkar, J., & Sarkar, S. (2012). *Corporate Governance in India*. New Delhi: Sage, p. 1.

[177] Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, 116(1), 107-155.

studies of McKinsey (2000), Gill (2003), Klapper and Love (2002), Campos et al. (2002), and PricewaterhouseCoopers (2002), examining firm performance and stock performance parameters in relation to a small set of elementary governance characteristics on the firm level of stock-listed companies of advanced and emerging economies.[178] Consequently, the empirical research focusing on time periods with a base year after 2002, discussed in sections 2.3 and 2.4, should provide more clarity on the effect of governance, because after this base year, regulations have defined more precisely what good corporate governance is—at least in the respective country.

2.1.1. Board Size and Firm Performance: Research Findings (1986–2003)

One monitoring mechanism that may impede the tendency of managers in pursuing their self-interested initiatives is oversight by the board of directors. This is often described as the most critical of directors' roles.[179] In order for this role to be optimized, besides independence, the size of boards is important because bigger boards are able to provide broader management monitoring. Zahra and Pearce (1992) as well as Dalton et al. (1998) note that firm performance and board size are positively correlated.[180]

Previous research has shown that there are both advantages and disadvantages to having larger and smaller boards. Chaganti et al. (1985), who studied the relationship between bankruptcy and board size, found that non-failed firms in their sample tended to have larger boards than the failed firms.[181] Finkelstein (1994) argued that the main advantage of a larger board is that it has more problem-solving capabilities, as the burden of directors are equally

---

[178] McKinsey (2000) *Investor opinion survey on corporate governance*. Retrieved from www.mckinsey.com/governance; Gill, A. (2003). *CLSA Watch: Corporate Governance in the Emerging Markets*. New York: CLSA CG; Klapper, L. F, & Love, I. (2002). *Corporate Governance, Investor Protection, and Performance in Emerging Markets* (World Bank Policy Research Working Paper 2818). New York: World Bank; Campos, C., Newell, R. E., & Wilson, G. (2002). *Corporate governance develops in emerging markets*. New York: McKinsey; PricewaterhouseCoopers (2002). *Bursa Malaysia PricewaterhouseCoopers Survey, Corporate Governance on Pubic Listed Companies in Malaysia*. Kuala Lumpur: KLSE Publication.

[179] Zahra, S. A., & Pearce, J. A. (1989). Boards of Directors and Corporate Financial Performance: A Review and Integrative Model. *Journal of Management*, 15(2), 291–334.

[180] Zahra, S. A., & Pearce, J. A. (1989). Boards of Directors and Corporate Financial Performance: A Review and Integrative Model. *Journal of Management*, 15(2), 291–334; Dalton, D. R., Daily, C. M., Ellstrand, A. E., & Johnson, J. L. (1998). Number of directors and financial performance: A meta-analysis. Academy of Management Journal, 42(6), 674–686.

[181] Chaganti, R. S., Mahajan, V., & Sharma, S. (1985). Corporate board size, composition and corporate failures in retailing industry', *Journal of Management Studies*, 22(4), 400-417.

shared among them.[182] Goodstein et al. (1994) assert that board size might be a measure of an organization's ability to form environmental links to secure critical resources. On the other hand, Fama and Jensen (1983) argue that small boards are more effective and suggested that when boards grow beyond seven or eight people[183], they are less likely to function effectively. Another study by Jensen (1993), based on a sample of US firms, asserts that the ability to process problems competently reduces as board size becomes larger ('board size effect').[184] Hermalin and Weisbach (2001) affirm that larger boards might also make it difficult for board members to use their knowledge and skills effectively, and this might inhibit performance.[185] Zahra and Pearce (1989) argue that there might be a threshold where board size may negatively affect performance.[186] This was reaffirmed by Lipton and Lorsch (1992) who pointed out that board size might have an inverse correlation with the degree of effective monitoring provided by the board of directors.[187] This means that effective monitoring on management would decrease for larger boards, and this could affect a firm's performance. They further recommended limiting the board size to fewer than seven or eight members. Chin et al. (2004), who investigated the effect of board size on firm performance for a sample of firms over a five-year period (1997–2001), found that the performance of firms fluctuates between three and nine board members and then waivers downward once the board size reaches ten members.[188] The level of board size likely to provide effective monitoring appears to be optimal at around nine members, which is when performance is the highest. These results were also confirmed by Guest (2009).[189] He examines 2,746 UK listed firms in the

[182] Finkelstein, S., & D'aveni, R. A. (1994). CEO duality as a double-edged sword: How boards of directors balance entrenchment avoidance. *Academy of Management Journal*, 37(5), 1079-1109.

[183] Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *Journal of Law and Economics*, 26, 301–325.

[184] Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems, *Journal of Finance*, 48(3), 831-880.

[185] Hermalin, B. E., & Weisbach, M. S. (2001) *Boards of Directors as an endogenously determined institution: A survey of economic literature* (*NBER Working Paper*, No.8161). Washington: National Bureau of Economic Research.

[186] Zahra, S. A., & Pearce, J. A. (1989). Boards of Directors and Corporate Financial Performance: A Review and Integrative Model. *Journal of Management*, 15(2), 291–334.

[187] Lipton, M., & Lorsch, J, (1992). A Modest Proposal for Improved Corporate Governance', *Business Lawyer*, 48, 59–77.

[188] Chin, T., Vos, E. D., & Case, Y. Q. (2004). Levels of ownership structure, Board composition and Board size seem unimportant in New Zealand. *Corporate Ownership & Control*, 2(1), 119-128.

[189] Guest, P. (2009). The impact of board size on firm performance: evidence from the UK. *European Journal of Finance*, 15(4), 385-404.

period 1981–2002. He finds that also a board size of fewer than 10 members is optimal whereas larger boards have a negative and significant impact on firm performance.[190] However, the research focusing on observation periods after the introduction of governance codices in several countries, as well as this empirical study, indicates that board size is mainly correlated with firm size, which is labeled consequently as firm size effect.

2.1.2. Board Meeting Frequency and Firm Performance: Research Findings (1986-2003)

Attendance at board meetings is only one indicator of a director's contribution and does not show whether a director actually contributes actively to board discussion. As mentioned in the previous section, the main role of boards of directors is to monitor management. This is due to the assumption that managers are self-interested and prone to moral hazard. A higher board meeting frequency might efficiently observe managerial behavior so that it is in accordance with shareholders' goals. This would probably reduce agency problems and enhance firm performance. Conger et al. (1998) assert that time spent on board meetings is a relevant resource regarding board effectiveness. A sufficient and well-organized period of time together between boards of directors and management would enhance the degree of cooperation and coordination.[191] This would certainly improve board effectiveness. Hence, the regularity with which boards meet is often used as a proxy in monitoring management and measuring board activity.[192] Therefore, also this empirical research measures board meeting frequency.

2.1.3. Role Duality and Firm Performance

Role duality occurs when one individual holds the two most dominant positions in a corporation, namely those of CEO and chairman. The position of CEO is a full-time post and is responsible for the day-to-day business operations as well as developing and implementing corporate strategy. In contrast, the key role of the chairman is to evaluate and monitor the

[190] Guest, P. (2009). The impact of board size on firm performance: evidence from the UK. *European Journal of Finance*, 15(4), 385-404, p. 402.

[191] Conger, J., Finegold, D. & Lawler, E. (1998). Appraising Boardroom Performance. *Harvard Business Review*, 76, 136-148.

[192] Evans, J., Evans, R., & Loh, S. (2002). Corporate Governance and Declining firm Performance. *International Journal of Business Studies*, 10(1), 1-18.

executive directors' performance, including the CEO. An individual who holds the two positions is more likely to advance personal interests to the disadvantage of the firm.[193]

Theoretically, there are two contrasting views with regard to the issue of role duality based on stewardship and agency theories. Agency theory proponents argue that the chairman must be independent in order to monitor the CEO and the executive board. The theory, therefore, supports the separation of the two roles. The separation is indispensable so as to provide the essential checks and balances over management's performance.[194] This is in line with the Cadbury Report (1992), which recommended clearly a defined division of responsibilities to balance the power at the head of the company.[195] Therefore, the role separation dilutes the CEO's power and increases the board's ability to appropriately execute its monitoring role. On the other hand, stewardship theory asserts that separation of both roles is not crucial, since many companies are well run with combined roles and have strong boards fully capable of providing adequate checks. Muth and Donaldson (1998) point out that the theory recognizes a range of non-financial motives of managers, for example, need for improvement, recognition, and intrinsic job satisfaction.[196] Stewart (1991) asserts that role duality enhances decision-making to permit a sharper focus on the company's objectives and promotes thus the rapid implementation of operational decisions.[197] Similarly, Dahya et al. (1996) believe that role duality allows the CEO with a strategic vision to shape the destiny of the firm with minimum board interference.[198] Monitoring efficiency could be enhanced through CEO–Chairman duality because the information asymmetry is reduced.[199] There was some evidence that companies practicing role duality perform better than those with separated leadership.[200]

---

[193] Evans et al., 2002, ibedem.

[194] Stiles, P., & Taylor, B. (1993). Maxwell–The Failure of Corporate Governance. *Corporate Governance–An International Review*, 1(1), 34-45.

[195] Cadbury Report (1992). *The Financial Aspects of Corporate Governance*. Retrieved from http://www.uksa.org.uk/files/press_releases/19920727_uksa_on_cadbury.pdf

[196] Muth, M., & Donaldson, L. (1998). Stewardship Theory and Board Structure: A contingency approach. *Corporate Governance: An International Review*, 6(1), 5-29.

[197] Stewart, R. (1991). Chairman and chief executive: An exploration of their relationship. *Journal of Management Studies*, 28(5), 511-528.

[198] Dahya, J., Lonie A. A., & Power, D. M. (1996). The Case for Separating the Roles of Chairman and CEO: An Analysis of Stock Market and Accounting Data', *Corporate Governance–An International Review*, 4(2), 71–77.

[199] Haniffa, R. M., & Cooke, T. E. (2002). Culture, Corporate Governance and Disclosure in Malaysian Corporations. *Abacus*, 38, 317–349.

[200] Donaldson, L., & Davis, J. H. (1991). Stewardship Theory or Agency Theory: CEO governance and shareholder returns. *Australian Journal of Management*, 16(1). 49-65.

However, this problem is only a problem of the one-tier system, whereas in countries with the two-tier system, such as Germany, CEO–Chairman duality is impossible due to country regulations and by law.

2.1.4. Firm Performance and Non-Executive Directors: Research Findings (1986-2003)

An independent director is one who is independent of management and free from any business relationships with the company, which could significantly interfere with the director's ability to act in the company's best interest. Their importance in establishing board independence and enhancing performance can be traced from the new rules for independent directors, which were introduced throughout Asia in the aftermath of the Asian financial crisis. Independent directors are important in moderating conflicts between shareholder groups, which implies that the interests of minority investors are best protected.[201] Theoretically, the monitoring role of independent directors can be largely derived from agency theory.[202] The theory argues that an independent board can reduce agency costs and maximize thus shareholder value by being involved in monitoring managerial and firm performance.[203] All corporate governance codes and guidelines, including the Cadbury Report (1992), Higgs Report (2003), and Sarbanes-Oxley Act (2002), insist that independent directors should play an important role in boards' independence.[204]

Byrd and Hickman (1992) assert that on average tenders offered to bidders with majority independent directors earn roughly zero stock price returns. However, bidders without such boards suffer statistically significant losses of 1.8% on average.[205] This result suggests that companies with relatively more independent directors tend to be more profitable than those with fewer independent directors. This may be due to independent directors acting to hold

[201] Anderson, R., Mansi, S., & Reeb, D, (2004). Board characteristics, accounting report integrity, and the cost of debt. *Journal of Accounting and Economics*, 37, 315-342.

[202] Fama & Jensen, 1983; 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.

[203] Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *Journal of Law and Economics*, 26, 301–325.

[204] Higgs, D. [Higgs Report] (2003). Review of the Role and Effectiveness of Non-Executive Directors. London: Department of Trade and Industry; Cadbury Report (1992). The Financial Aspects of Corporate Governance. Retrieved from http://www.uksa.org.uk/files/press_releases/19920727_uksa_on_cadbury.pdf; Sarbanes-Oxley Act of 2002 (SOX) (2002). *Public Law No. 107-204, 116 Stat. 745, sec. 1-1107*, Washington, DC: GPO.

[205] Byrd, J., & Hickman, K. (1992). Do Outside Directors Monitor Managers? Evidence from Tender Offer Bids. *Journal of Financial Economics*, 32, 195-221.

back the tendency of CEOs to build untenable financial empires. Denis et al. (1997) claim that firms that substantially increase their share of independent directors have above-average shareholder returns.[206] This indicates that more independent directors could most probably add value to the firm. Conversely, several studies suggest that firms with a higher share of independent directors perform worse than those with relatively fewer independent directors. For example, Agrawal and Knoeber (1996) find a negative correlation between Tobin's Q and the independent directors ratio.[207] Yermack (1996) reports a significant negative correlation between the proportion of independent directors and Tobin's Q.[208] This is consistent with evidence established by Bhagat and Bolton (2008), that more independent directors are strongly correlated with slower growth in the observation period from 1990 to 2003.[209] Klein (2006) finds a negative and significant correlation with the market value of equity.[210]

Board composition is defined as the share of non-executive directors in the boardroom. Board composition is seen as important mechanisms due to non-executive directors representing a means of management monitoring and of ensuring that the executive directors pursue policies consistent with shareholders' interests.[211] Non-executive directors possess two characteristics to fulfill their monitoring function. First, they are concerned with maintaining their reputations[212] and, second, their independence.[213] Since shareholders elect the board of directors, they have the duty to monitor management activities in the shareholders' interest.[214]

---

[206] Denis, D., Diane, K., & Sarin, S. (1997). Agency problems, Equity ownership and corporate diversification. *Journal of Finance*, 52(1), 135-160.

[207] Agrawal, A., & Knoeber, C. R. (1996). Firm Performance and Mechanisms to Control Agency Problems between Manager and Shareholders. *Journal of Financial and Quantitative Analysis*, 31(3), 377–89.

[208] Yermack, D. (1996). Higher Market Valuation of Companies with a Small Board of Directors. *Journal of Financial Economics*, 40, 185–211.

[209] Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance*, 14, 257-273.

[210] Klein, P. A. (2006). *Economics Confronts the Economy*: Cheltenham: Edward Elgar, pp. 345-347; Butter, F. A. G. (2012). *Managing Transaction Costs in the Era of Globalization*. Cheltenham: Edward Elgar, pp. 56-57.

[211] Fama, E. F. (1980). Agency problems and the theory of the firm. *Journal of Political Economy*, 288-307.

[212] Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *Journal of Law and Economics*, 26, 301–325.

[213] Cadbury Report (1992). *The Financial Aspects of Corporate Governance*. Retrieved from http://www.uksa.org.uk/files/press_releases/19920727_uksa_on_cadbury.pdf.

[214] Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *Journal of Law and Economics*, 26, 301–325.

The important meaning of non-executive directors has been established by various corporate governance reports, regulations, recommendations, etc. These changes indicate that the influence of non-executive directors, in terms of number and proportion of members on the board, has increased over the past decade. Thus, Mace (1986) asserts that non-executive directors are needed on the boards, as they are perceived to be more independent than executive directors.[215] Brickley and James (1987) affirm that non-executive directors are able to reduce managerial utilization of perks, such as remuneration and expenditures of the CEO and top management.[216] This could eventually help to lower firm costs and consequently enhance firm performance. Kesner and Johnson (1990) as well as Grace et al. (1995) state that non-executive directors are essential by bringing in additional specialized skills.[217] Therefore, they are often appointed to board committees such as audit, remuneration, and nomination committees.[218] Their establishment should, thus, enhance the board's effectiveness and contribute to the attainment of higher performance. However, a large number of non-executive directors with diverse interests may reduce a firm's flexibility. This is because more non-executive directors could stifle strategic actions as the CEO spends unproductive time explaining management's decisions and persuading non-executive directors to support them.[219] Baysinger and Butler (1985) assume that non-executive directors impose excessive monitoring on management and thus create uncomfortable working environments.[220] These could result in conflicts between them and influences board efficiency.[221] Patton and Baker (1987) affirm that non-executive directors lack the business knowledge to carry out their

[215] Mace, M. (1986). *Directors, Myth, and Reality*. Boston: Harvard Business School Press.

[216] Brickley, J. A., & James, C. M. (1987). The Takeover Market, Corporate Board Composition and Ownership Structure: The Case of Banking. *Journal of Law and Economics*, 30, 161–180.

[217] Kesner, I., & Johnson, R. (1990). An investigation of the relationship between board composition and stockholder suits. *Strategic Management Journal*, 11, 327-336; Grace, M., Ireland, A., & Dunstan, K, (1995). Board Composition, Non-Executive Directors' Characteristics and Corporate Financial Performance. *Asia-Pacific Journal of Accounting*, 2(1), 121–137.

[218] Stiles, P., & Taylor, B. (1993). Maxwell–The Failure of Corporate Governance. *Corporate Governance–An International Review*, 1(1), 34-45.

[219] Goodstein, J., Gautum, K., & Boeker, W. (1994). The Effect of Board Size and Diversity on Strategic Change. *Strategic Management Journal*, 15, 241–250.

[220] Baysinger, D., Butler, H. N. (1985). Corporate governance and the board of directors: Performance effects of change in board composition. *Journal of Law, Economics and Organization*, 1, 101-24.

[221] Stiles, P., & Taylor, B. (1993). Maxwell–The Failure of Corporate Governance. *Corporate Governance–An International Review*, 1(1), 34-45.

duties.[222] This is possibly due to their difficulties in understanding the complexities of monitoring the company's operations and, therefore, they depend much on the CEO and executive directors concerning information on firm performance and related problems. As a result, it is difficult for them to be totally effective.

Overall, the relationship between firm performance and non-executive directors was inconsistent because the linkage depends on numerous factors.[223] Thus, there are well-performing firms with less non-executive directors and others that perform well with a higher share of non-executive directors. Although both have arguments for and against them, most authors favor non-executive director dominated boards. Nevertheless, in the long run, firm performance depends on director quality and the specialized skills they bring to the firm. Overall, the results are mixed regarding firm performance and the share of independent directors in the boardroom (board composition). This could be due to inadequate roles of independent directors, and they may not be truly independent.[224] Despite that, all corporate governance codes and guidelines prefer more independent directors to monitor management because they are seen to be more independent than inside directors.

2.1.5. Director's Financial Qualification and Firm Performance: Research Findings (1986–2003)

The Blue Ribbon Committee (1999), the Ramsay Report (2001), and the Smith Committee (2003) all proposed that companies' boards should have members with varied expertise to steer companies and enhance performance.[225] They should be knowledgeable of their company's business and operating environment. Although the areas of expertise were not mentioned deliberately, all of those reports suggested that directors should have accounting or finance-related qualifications to be appointed as audit committee members. The underlying basis of this recommendation is that knowledgeable board members are in a better position to understand their main role of monitoring management. McMullen and Raghunandan (1996) assert that board member qualifications have been found to be crucial in

[222] Patton, A., & Baker, J. C. (1987). Why won't directors rock the boat?. *Harvard Business Review*, 65(6), 10-18.

[223] Daily, C. M. & Dalton, D. R. (1993). Board of Directors Leadership and Structure: Control and Performance Implications', *Entrepreneurship: Theory and Practice*, 7, 65–82.

[224] Baysinger, D., Butler, H. N. (1985). Corporate governance and the board of directors: Performance effects of change in board composition. *Journal of Law, Economics and Organization*, 1, 101-24.

[225] Turley, S., & Zaman, M. (2007). Audit committee effectiveness: informal processes and behavioural effects. *Accounting, Auditing & Accountability Journal*, 20(5). 765-788, pp. 766-767.

determining their effectiveness in carrying out their duties.[226] Hence, the appointment of directors with accounting or finance qualifications is considered indispensable, especially when dealing with external auditors and carrying out other boards' tasks, such as evaluating financial statements and reports.

However, there were no empirical studies that directly relate supervisory board member's accounting and finance qualifications with performance. Only a few studies examine the relationship between accounting or finance qualifications of audit committee members with performance. For example, McMullen and Raghunandan (1996) found that companies involved in enforcement actions by the authorities concerning accounting issues are much less likely to have an accountant on the board and/or audit committee.[227] The implication of their study is that accounting or finance qualifications of non-executive members would more likely contribute to the monitoring quality of accounting and corporate financing.

2.2. Corporate Governance and Firm Performance Research Findings (after 2003)

This section also analyzes the state of empirical research on the relation of good corporate governance and firm performance on single parameters of corporate governance such as board size, role duality, independent directors, and firm performance. In contrast to the previous section, this section focuses on the research that examines essentially the post-Sarbanes-Oxley period. The Sarbanes-Oxley Act can be seen as a turning point after which many changes can be observed in many countries.[228] Many countries have introduced corporate governance codes as a kind of soft law since 2002.[229] Additionally, laws were modified concerning the requirement to supervisory boards in many countries. In this respect, the post-Sarbanes-Oxley period is characterized by a transnational standardization of corporate governance requirements.[230] Of course, this also changes the results of empirical

[226] McMullen, D. A., Raghunandan, K. (1996). Enhancing audit committee effectiveness. *Journal of Accountancy*, 182, 79-81.

[227] McMullen, D. A., Raghunandan, K. (1996). Enhancing audit committee effectiveness. Journal of Accountancy, 182, 79-81.

[228] Ali, P., Gregoriou, G. N. (2006). International Corporate Governance After Sarbanes-Oxley. New York: Wiley.

[229] Dewing, I., 6 Russel, P. (2014). Auditing Standards. In D. Mügge (ed.), *Europe and the Governance of Global Finance* (pp. 97-112). Oxford: Oxford University Press, p. 97.

[230] Plessis, J., & Saenger, I. (2012). An Overview of the Corporate Governance Debate. In J. P. Plessis, B. Großfeld,, C. Luttermann, I. Saenger, I., O. Sandrock, & M. Casper, M. (ed.). *German Corporate Governance in*

research. Whereas the pre-Sarbanes-Oxley period was characterized by significant differences between companies regarding corporate governance, both between companies within a country and between companies of different countries, the post-Sarbanes-Oxley period is characterized by a cross-country homogenization of corporate governance codes and practices as well as by the homogenization of corporate governance practices within the countries.

2.2.1. Corporate Governance and Firm Performance: Research Findings on the Introduction of Governance Codes

Already in 1998, Dalton et al. (1998) stated in a meta-analysis of empirical studies that both the board composition (insider/outsider proportion) as well as the leadership structure have no effect on financial performance.[231] Since then, further studies have been published that came to different results. A majority of studies with positive correlations published in the years prior to 2005, respectively, are based on the observation period prior to 2005,[232] which is before the rise of global corporate governance 'movements'. Instead, several studies indicating negative or no correlations between firm performance and corporate governance were published after the rise of a global corporate governance 'movement'.[233]

Several of the studies do not use a standardized general measure to define good corporate governance. They measure single aspects of a corporate governance system such as the leadership structure,[234] board ownership[235], or board independence[236] and their impact on firm performance. Some studies determine a relationship between only two variables, such as financial performance with board or management structures.[237] The findings of such studies

---

International and European Context (3nd ed.) (pp. 9-36). Heidelberg: Springer. p. 17; Bainbridge, S. M. (2016). *Corporate Governance After the Financial Crisis*. Oxford: Oxford University Press, pp. 90, 269.

[231] Dalton, D. R, Daily, C. M., Certo, S. T., & Roengpitya, R. (1998). Meta-Analyses of Financial Performance and Equity: Fusion or Confusion?. *Strategic Management Journal, 19,* 269–290, p. 282.

[232] See the list of studies in Annex IV.

[233] See the list of studies in Annex V.

[234] Castaner, X., & Kavadis, N. (2013). Does Good Governance prevent bas strategy? A study of corporate governance, financial diversification, and value creation by French corporations, 2000-2006. *Strategic Management Journal*, 34, 863-876.

[235] Carline, N. F., Linn, S. C., & Yadav, P. K. (2009). Operating performance changes associated with corporate mergers and the role of corporate governance. *Journal of Banking, & Finance*, 33, 1829-1841.

[236] Nicholson, G. J., & Kiel, G. C. (2007). Can Directors Impact Performance? A case-based test of three theories of corporate governance. *Corporate Governance*, 15(4), 585-608.

[237] Hermalin, B., & Weisbach, M. S. (1991). The effects of board composition & direct incentives on firm performance. *Financial Management*, 20(4), 101-112; Krivogorsky, V. (2006). Ownership, board structure, &

with a reduced set of variables are mostly that a single aspect of corporate governance has a positive impact, others do not. Brenes et al. (2011), for example, determined that the more intensive the evaluation of management performance by the board, the better is the company performance to vis-à-vis competitors.[238] Castaner and Kavadis (2013) note that leadership structure has a positive impact: a chairman–manager non-duality[239] increases financial performance. Carline et al. (2009) state that board ownership[240] shows a positive impact on company performance. Nicholson and Kiel (2007) also show that an independent board has a positive impact on firm performance. [241] Others, such as Bauer et al. (2004), Larcker et al. (2007), Bhagat and Bolton (2007), Daines et al. (2008), Renders, Gaeremynck, and Sercu (2010), and Gupta, Chandrasekhar, and Tourani-Rad (2013), use corporate governance rankings to compare the corporate governance 'culture' of countries, in which companies are embedded, with the overall performance of companies in this country.[242] Thus, they are not interested in measuring the impact of single aspects of corporate governance on company performance.

Some studies use a very small sample. Only Bauer et al. (2004), Brown and Caylor (2006), Bhagat and Bolton (2007), Daines et al. (2008), Renders, Gaeremynck, and Sercu (2010), and Gupta, Chandrasekhar, and Tourani-Rad (2013) use samples with more than 250 companies.[243] Considering this, the ratio between studies stating a positive impact and studies

---

performance in continental Europe. in *The International Journal of Accounting*, 41(7), 176-197; Demsetz, H., & B. Villalonga (2001). Ownership Structure and Corporate Performance. *Journal of Corporate Finance*, 7, 209-233.

[238] Brenes, E. R., Madrigal, K., & Requena, B. (2011). Corporate governance and family business performance. *Journal of Business Research*, 64, 280-285.

[239] CEO and chairman of the board are not represented by the same individual.

[240] Owner are also board member.

[241] Nicholson, G. J., & Kiel, G. C. (2007). Can Directors Impact Performance? A case-based test of three theories of corporate governance. *Corporate Governance*, 15(4), 585-608.

[242] Bauer, R., Gunster, N., & Otten, R. (2004). Empirical evidence on corporate governance in Europe: The effect on stock returns, firm value, and performance. *Journal of Asset Management*, 5, 91–104; Larcker, D., Richardson, S., & Tuna, I. (2007). Corporate governance, accounting outcomes, and organizational performance. *The Accounting Review*, 82, 963-1008; Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance*, 14, 257-273; Daines, R., Gow, I., & Larcker, D. (2008). Rating the ratings: How good are commercial governance ratings? *Journal of Financial Economics* (JFE), 98(3), 439-461; Renders, A., Gaeremynck, A., & Sercu, P. (2010). Corporate Governance and Performance: Controlling for Sample Selection Bias and Endogeneity. *Corporate Governance*, 18(2), 87-106; Gupta, K., Chandrasekhar, K., & Tourani-Rad, A, (2013). Is corporate governance relevant during the financial crisis?. *Journal of International Financial Markets, Institutions and Money*, 23, 85-110.

[243] For reference see Footnote 241

with a neutral or negative impact is relatively balanced. Most of the studies examine only short time periods from two to four years. Only Gompers et al. (2003) examine a longer period (from 1990 to 1999).[244] Therefore, it seems to be questionable if such short-term studies really measure what they propose to measure: performance is not a spot check. A company's performance cannot be measured at a single time or a year. Thus, relevant metrics such as revenue growth year-over-year, market capitalization growth year-over-year, etc. cannot be applied to level the impact of outlier data and to measure performance realistically. In summary, most studies use a small set of variables in particular, in respect to measuring firm performance and determining only the relationships between single aspects of corporate governance with one or two firm performance variables. Almost all studies use a very short period. Only two studies differ in all these points from all other studies. Renders, Gaeremynck, and Sercu (2010) apply a comprehensible set of typical standard metrics of financial research such as P/B ratio (price-book ratio), ROA (return on assets), P/S ratio (price-sales ratio), ROE (return on equity), market capitalization, etc. in relation to corporate governance rankings, and monitor a cross-country sample, including stock listed companies from the 16 largest countries of the EU, in a time period of four years. They expected a positive relationship between the corporate governance ratings of the companies' countries and firm performance, assuming that companies in countries with a higher rating show better corporate-governance practices and thus a better financial and operational performance and higher market values. Their multivariate regression analysis shows that this is indeed the fact: The "*coefficient of corporate-governance ratings has a highly significant positive effect on performance*".[245] Their main conclusion is that companies can improve performance by adhering to good corporate governance practices.[246] According to Renders, Gaeremynck, and Sercu (2010), this clear evidence is only possible when a larger set of financial accounting variables is applied in combination with corporate governance indices and a longer period.[247]

The second study with a multiple regression approach, an enlarged variable set, financial analysis metrics, and a longer period originate from Gupta, Chandrasekhar, and Tourani-Rad

---

[244] Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, 116(1), 107-155.

[245] Renders, A., Gaeremynck, A., & Sercu, P. (2010). Corporate Governance and Performance: Controlling for Sample Selection Bias and Endogeneity. *Corporate Governance*, 18(2), 87-106, p. 100.

[246] Renders, A., Gaeremynck, A., & Sercu, P. (2010). Corporate Governance and Performance: Controlling for Sample Selection Bias and Endogeneity. *Corporate Governance*, 18(2), 87-106, p. 100.

[247] Renders, A., Gaeremynck, A., & Sercu, P. (2010). Corporate Governance and Performance: Controlling for Sample Selection Bias and Endogeneity. *Corporate Governance*, 18(2), 87-106, pp. 100-101.

(2013). They used a large set of variables, including such variables as CAPEX, financial leverage, revenue, P/B ratio, ROA etc., in a multiple regression analysis. Gupta, Chandrasekhar, and Tourani-Rad (2013) determine that well-governed firms do not outperform poorly governed firms, particularly in the financial crisis. The cross-country sample consists of 2,704 companies from 27 economically leading countries worldwide. The main result is that good corporate governance, measured by the corporate governance rating of a firm's country, has no impact on firm performance on country-level.[248] They conclude that the widely held belief is that corporate governance failure explaining market price or firm performance cannot be verified.[249]

To sum up, it can first be stated that many studies examine only small samples with a restricted set of variables, which are mostly non-standard financial research variables. Second, they state only moderate correlations between single differences in corporate governance variances and mostly one performance metric. Only two studies differ in this regard. Both studies differ in their results: Whereas Renders, Gaeremynck, and Sercu (2010) find a positive correlation between good corporate governance and firm's financial performance, Gupta, Chandrasekhar, and Tourani-Rad (2013) cannot confirm a positive relationship. Therefore, further research should examine the degree of deviations from CG codices as a measure for good corporate governance and its relation to the market and operating performance on company-level. A wider set of variables should be used containing only standard metrics of financial research. Therefore, recommendations for further research are as follows:

- Samples with a higher number of companies are recommended (> 100) to be examined.
- To compare real differences between companies, and not between groups of companies in relation to the corporate governance country ranking; a sample should be differentiated regarding variations in company-specific corporate governance.
- The performance metrics should not be research constructs but rather standard financial research metrics.

[248] Gupta, K., Chandrasekhar, K., & Tourani-Rad, A, (2013). Is corporate governance relevant during the financial crisis?. *Journal of International Financial Markets, Institutions and Money*, 23, 85-110, p. 97-98.

[249] Gupta, K., Chandrasekhar, K., & Tourani-Rad, A, (2013). Is corporate governance relevant during the financial crisis?. *Journal of International Financial Markets, Institutions and Money*, 23, 85-110, p. 107.

2.2.2. Board Size and Firm Performance: Research Findings (after 2003)

In contrast to research with highly aggregated variables customary for the good corporate governance research, the studies presented in the following employ single, mostly quantitative and directly measurable variables, which characterizes the board in terms of qualitative and quantitative structure. Jaskiewicz and Klein (2007) examine the impact of goal alignment between owners and managers and board size in non-listed family businesses.[250] They note that despite numerous studies, the relationship between board characteristics and corporate performance remains unclear. According to Jaskiewicz and Klein (2007), this even applies more to family businesses where the role of boards is different from that of large enterprises. From an agency theory perspective, the main function of a directors' board is to ease the principal–agent conflict between small anonymous shareholders and managers. However, unlisted businesses show a high presence of owners in the firm's management with the result that agency problems should be significantly lower. Thus, in family businesses, the owner's presence should lead to lower goal divergence between owners and managers. Therefore, agency theory may not provide an adequate description to specific configurations. Jaskiewicz and Klein (2007) state that literature on the optimal size of boards is inconsistent and inconclusive as to whether large or relatively smaller boards are more capable of fulfilling their tasks. The findings of their questionnaire-based study with 1,159 companies are that board size is an indicator for the degree of goal alignment: The larger the board, the lower is the degree of goal alignment. The introduction of more formal monitoring in terms of a higher number of external board members imposes additional costs on the business but does not necessarily influence firm performance.[251] However, this finding is not confirmed by Staikouras et al. (2007). They investigated 59 European banks and found that in the financial industries, the number of external board members has an impact on firm performance but not a really significant one.[252]

Cheng (2006) analyzes board size and the variability of corporate performance with a sample of 1,252 firms. According to Cheng (2006), board size and the variability of corporate performance potentially arises because larger boards have communication/coordination and agency problems. Unlike the mainstream of research, for example, Jaskiewicz and Klein

[250] Jaskiewicz, P., & Klein, S. (2007). The impact of goal alignment on board composition and board size in family businesses. *Journal of Business Research*, 60(10), 1080-1089.

[251] Jaskiewicz & Klein, 2007, ibedem.

[252] Staikouras, P., Staikouras, C., Agoraki, M. E. (2007). The effect of board size and composition on European bank performance. *European Journal of Law and Economics*, 2007, 23(1), 1-27, pp. 21-22.

(2007) as well as Cheng (2006) state that corporate performance and corporate value become less variable as the board of directors grows larger.[253] Cheng assumes that a negative association between board size and corporate performance arises due to some exogenous factors.[254] According to him, board size is not an indicator for lower goal alignment in companies and thus a measure for agency problems. On the contrary, he argues that the higher degree of formal procedures and different perspectives in larger boards lead to stabilization of decisions and more continuity in decision making so that extremes and volatility in the decision-making process are avoided.[255] Wang (2012) confirms Cheng's findings investigating the association of board size with risk-taking. Examining a sample of 1,618 firms in the time period from 1996 to 2004, he finds that companies with smaller boards take higher risks.[256] On the other hand, he determines that "*smaller boards may be more effective in improving firm value*."[257] However, this interpretation may be precipitatory because Wang examines only companies that exist over the whole time period and not companies that become insolvent within the given time period. It is likely that higher risks also increase the probability of insolvency. In this respect, a comparison with a control group containing insolvent companies is required. Wang (2012) analyzes only successful companies in the time period. In other words, Wang (2012) investigates only the board size of successful companies but not the board size of the unsuccessful. However, in the context of this thesis, the finding that smaller boards lead to taking higher risks is all the more relevant. Nakano and Nguyen (2012) confirm the association between board size and risk-taking. Examining 1,450 Japanese listed firms in the time period 2003–2007, their "*results indicate that firms with larger boards exhibit lower performance volatility as well as lower bankruptcy risk*."[258] They ascertain that the association between board size and firm performance in the context of risk-taking depends on the market environment. In an environment with decreasing investment opportunities, a

[253] Cheng, S. (2008). Board size and the variability of corporate performance. *Journal of Financial Economics*, 87(1), 157-176, p. 175.

[254] Cheng, S. (2008). Board size and the variability of corporate performance. *Journal of Financial Economics*, 87(1), 157-176, p. 175.

[255] Cheng, S. (2008). Board size and the variability of corporate performance. *Journal of Financial Economics*, 87(1), 157-176, p. 158.

[256] Wang, C. J. (2012). Board size and firm risk-taking. *Review of Quantitative Finance and Accounting*, 38(4), 519-542, p. 540.

[257] Wang, C. J. (2012). Board size and firm risk-taking. *Review of Quantitative Finance and Accounting*, 38(4), 519-542, p. 540.

[258] Wang, C. J. (2012). Board size and firm risk-taking. *Review of Quantitative Finance and Accounting*, 38(4), 519-542, p. 540.

lower board size has a positive effect on firm performance because this increases the ability to make bold and opportunity-driven decisions.[259] On the other hand, the relation between board size and risk-taking is "*comparatively weaker and often insignificant when firms have plenty of growth opportunities*"[260] These results lead Nakano and Nguyen to the conclusion that companies should accommodate board size to market environment: "*Smaller board sizes should help them make more audacious decisions and regain their lost competitive advantages*."[261] Whereas, in the case of firms with more growth opportunities, an increasing board size decreases performance volatility and thus insolvency risks. However, one of the most relevant findings seems to be that the general impact of board size on firm performance is, overall, economically small.[262] On the other hand, in the cases of "*more risky firms* [...] *board size is not only important but also the most significant factor explaining the volatility of ROA*."[263]

Concerning the risk-moderating impact of board size, Tanna, Pasiouras, and Nnadi (2011) determine an efficiency effect which is positively associated with board size. Although they investigate only a sample containing the largest UK banks, they find that "*a larger board size contributes to technical, allocative, cost, and profit-oriented efficiency*."[264] This applies particularly to the proportion of non-executive board members: the higher the number of non-executive board members, the higher are all efficiency measures.[265] Pathan and Faff (2013) come to the same conclusions concerning the dependency of board size and firm performance in respect to the firm's market position. Their sample consists of the top 300 listed commercial banking companies headquartered in the US over the period 1997–2011.

[259] Nakano, M., & Nguyen, P. (2012). Board Size and Corporate Risk Taking: Further Evidence from Japan. *Corporate Governance-An International Review*, 20(4), 369-387, p. 383.

[260] Nakano, M., & Nguyen, P. (2012). Board Size and Corporate Risk Taking: Further Evidence from Japan. *Corporate Governance-An International Review*, 20(4), 369-387, p. 383.

[261] Nakano, M., & Nguyen, P. (2012). Board Size and Corporate Risk Taking: Further Evidence from Japan. *Corporate Governance-An International Review*, 20(4), 369-387, p. 383.

[262] Nakano, M., & Nguyen, P. (2012). Board Size and Corporate Risk Taking: Further Evidence from Japan. *Corporate Governance-An International Review*, 20(4), 369-387, p. 376.

[263] Nakano, M., & Nguyen, P. (2012). Board Size and Corporate Risk Taking: Further Evidence from Japan. *Corporate Governance-An International Review*, 20(4), 369-387, p. 377.

[264] Nakano & Nguyen, 2012, ibedem, p. 377.

[265] Tanna, S., Pasiouras, F., & Nnadi, M. (2011). The Effect of Board Size and Composition on the Efficiency of UK Banks. *International Journal of the Economics of Business*, 18(3), 441-462, p. 455.

According to their results, small boards improve bank performance,[266] but the degree of this association is moderated by the bank's market power. The better the market position, the lower is the impact of board size.[267] Upadhyay et al. (2014), however, show that the general question in terms of board size impact on firm performance may not be overall determinable. On the contrary, they show that larger boards are very effective when board organization has achieved a high 'division of labor' degree. Using ROA and EVA, they find that board size is significantly positively associated with firm performance when board 'operations' are organized in more than three monitoring committees.[268] Thus, communication and coordination costs associated with large and independent boards are mitigated.[269] Therefore, they recommend that "*larger boards may be required to increase monitoring through independent standing committees of the board*."[270]

Summarizing the research on board size and firm performance, it can be concluded that there is no general limit to the effectiveness of boards. Rather, it can be noted that for companies in difficult situations, a smaller board size is good for quick decisions, while for companies with solid corporate development, it is even so that a larger board lowers the volatility of revenues, earnings, and value performance. In this case, the key for effectivity is more dependent on the inner organization of the board in terms of the number of committees formed. The most comprehensive and methodologically elaborated analysis of the economic consequences for the efficiency of the supervisory board in German company originates from Bermig and Frick (2010a, 2010b, 2010c, 2010d). Their data set contains all companies listed in the period 1998–2007 for at least one year in the DAX, MDAX or SDAX. Prerequisite for the inclusion of a company in the data set is the existence of all relevant data for at least two consecutive years. Overall, the sample contains 294 companies. The results are:

(1) The average board size has decreased to 9.6 from 10.8 members over the entire time period.

---

[266] Pathan, S., & Faff, R. (2013). Does board structure in banks really affect their performance? *Journal of Banking and Finance*, 37(5), 1573-1589, p. 1588.

[267] Pathan, S., & Faff, R. (2013). Does board structure in banks really affect their performance? *Journal of Banking and Finance*, 37(5), 1573-1589, p. 1577.

[268] Upadhyay, A. D., Bhargava, R., & Faircloth, S. D. (2014). Board structure and role of monitoring committees. *Journal of Business Research*, 67(7), 1486-1492, p. 1486.

[269] Upadhyay, A. D., Bhargava, R., & Faircloth, S. D. (2014). Board structure and role of monitoring committees. *Journal of Business Research*, 67(7), 1486-1492, p. 1492.

[270] Upadhyay, A. D., Bhargava, R., & Faircloth, S. D. (2014). Board structure and role of monitoring committees. *Journal of Business Research*, 67(7), 1486-1492, p. 1492.

(2) The board size has a significant positive impact on the company's market-to-book ratio but has a significant negative impact on stock returns.

(3) The influence of board size on ROE is not statistically significant.

(4) The likelihood and the extent of accounting scandals (earnings management) increase with board size.

(5) The amount of non-invested provisions but also free cash flow is not distributed to shareholders with an increasing board size.

(6) The proportion of council members of the supervisory board has a significant negative impact on the return on capital employed.

(7) A higher proportion of employer representatives on the supervisory board is associated with lower provisions.[271]

Consequently, the question of board size and firm performance requires a differentiated answer. Board size depends more on a company's specific needs, which means that it is rather improbable that board size and firm performance have a significant and more than moderate correlation in a mixed set of companies with different performance values.

2.2.3. Board Meeting Frequency and Firm Performance: Research Findings (after 2003)

Since the study of Vafeas (1999), no other study has been published explicitly examining the impact of board meeting frequency on firm performance. Vafeas found that for 307 firms over the 1990–1994 period, the annual number of board meetings is inversely related to firm value. Thus, board activity is a crisis indication, which is highly correlated with share price declines whereas an increase in board meeting frequency follows the share price decline and operating performance improves in the following years.[272] Francis et al. (2012) examined the impact of boards on firm performance during a financial crisis. They found that board meeting frequency is positively related to stock performance. Their result

[271] Bermig, A., & Frick, B. (2010a). *Mitbestimmung und Unternehmensperformance: Der Einfluss von Arbeitnehmervertretern im Aufsichtsrat auf den Unternehmenswert*. Paderborn: Management Department University of Paderborn.

[272] Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics*, 53(1), 113–142, p. 115.

suggests that board meetings are an important attribute of board efficiency during a crisis.[273] On the one hand, this result confirms the findings of Vafeas (1999) whereby the conclusion is different. Francis et al. (2012) show that board meeting frequency has a positive impact on crisis management, whereas Vafeas (1999) interprets board meeting frequency as a subsequent indicator for a firm's crisis. Nevertheless, Vafeas (1999) determines the same positive effect on operating performance as Francis et al. (2012).

Fich and Shivdasani (2006) found in their study with a sample including the largest 500 US firms for the period 1989–1995 that board meeting frequency increases the number of non-attending board members, which has a negative impact on firm performance in terms of market-to-book-ratios, turnover, and ROA.[274] Their conclusion is that "busy boards", which are those where the majority of external directors hold three or more directorships, lose efficiency. Busy directors attend board meetings less frequently than less 'busier' board members.[275] Thus, Fich and Shivdasani (2006) show that the variable 'frequency of board meeting' may have also a negative impact on board effectivity.

Summarizing the research on meeting frequency and firm performance, it can be stated that there is basically no negative relationship between board meeting frequency and firm performance. On the contrary, it can be stated that in times of crisis, the increased number of board meetings has a positive impact on firm performance, while, however, the supervisory efficiency decreases moderately.

2.2.4. Role Duality and Firm Performance: Research Findings (after 2003)

Contrary to research on board meeting frequency and board size, research on role duality is less extensive. Here, just a few recent studies have been published since 2004. One of the most in-depth empirical studies is from Jermias and Gani (2014). Their results show that firms in which the CEO is also the chairman of the board perform poorer than those in which the CEO is not the chairman.[276] However, Upadhyay et al. (2014) could not find such

[273] Francis, B. B., & Hasan, I., & Wu, Q. (2012). Do corporate boards matter during the current financial crisis? *Review of Financial Economics*, 21(2), 39-52, p. 39.

[274] Fich, E. M., & Shivdasani, A. (2006). Are busy boards effective monitors? *Journal of Finance*, 2006, 61(2), 689-724, pp. 721-722.

[275] Fich, E. M., & Shivdasani, A. (2006). Are busy boards effective monitors? *Journal of Finance*, 2006, 61(2), 689-724, pp. 721-722.

[276] Jermias, J., & Gani, L. (2014). The impact of board capital and board characteristics on firm performance. *The British Accounting Review*, 46(2), 135-153, p. 151.

an association.[277] This may be because their sample consists of firms listed in the Compustat S&P 500 database for the period 1997–2004. This means that the number of boards with role duality is much greater here than in the post-Sarbanes-Oxley period, since the introduction of corporate governance codes led to a stronger separation of control and management function. Thus, the sample of Upadhyay et al. (2014) contains only a low number of boards without role duality, so that the results were not statistically significant due to the small number of cases.

Apart from that, Jermias and Gani (2014) ascertain that board capital in the sense of non-executive board member with executive experience mitigates negative effects of role duality.[278] Therefore, the few research results concerning role duality show that role duality, in the sense of the division of labor between management supervision and operational management, is of significance for the effectiveness of supervisory activities, especially if the board members have management experience.

2.2.5. Independent (Non-Executive) Members and Firm Performance: Research Findings (after 2003)

Staikouras et al. (2007) investigated 59 European banks and found that in the financial industry the number of external non-executive board members have an impact on firm performance but not a really significant one.[279] Brenes et al. (2011) found in investigating larger family businesses that independent board members have enriched company management by bringing in additional objectiveness.[280] Francis et al. (2012) examine the impact of boards on firm performance during a financial crisis. Independent members do significantly affect firm performance in the case of the financial crisis.[281] However, Lefort and Urzua (2008) found no association between the proportion of independent directors and firm performance.[282] However, this is not in contradiction to the

[277] Upadhyay, A. D., Bhargava, R., & Faircloth, S. D. (2014). Board structure and role of monitoring committees. *Journal of Business Research*, 67(7), 1486-1492, p. 1491.

[278] Jermias, J., & Gani, L. (2014). The impact of board capital and board characteristics on firm performance. *The British Accounting Review*, 46(2), 135-153, p. 151.

[279] Staikouras, P., Staikouras, C., Agoraki, M. E. (2007). The effect of board size and composition on European bank performance. *European Journal of Law and Economics*, 2007, 23(1), 1-27, pp. 21-22.

[280] Brenes et al., 2011, p. 284.

[281] Francis, B. B., & Hasan, I., & Wu, Q. (2012). Do corporate boards matter during the current financial crisis? Review of Financial Economics, 21(2), 39-52, p. 50.

[282] Lefort & Urzua, 2008, pp. 620-621.

opposite results of Brenes et al. (2011) and Francis et al. (2012). In conjunction with the results of Staikouras et al. (2012), one can even conclude that independent board members are important in crises. They bring in additional objectiveness, which is not so required in the case of normal business cases. In this respect, one can conclude that a balanced proportion of non-executive (independent) and executive board members is a way of 'risk diversification'.

2.2.6. Impact of Corporate Governance on Shareholder Value and Firm Value: Research Findings (after 2003)

Chhaochharia and Grinstein (2007) examined a random sample of 263 S&P 1500 index in the time period 2001–2002. They found positive abnormal returns in firms that are less compliant with corporate governance rules, according to the Sarbanes-Oxley Act. Thus, they concluded that corporate governance rules have an economically significant negative impact on firm value. Furthermore, they found some evidence that board independence and internal controls do not enhance the value of small firms.[283] In contrast, Switzer and Tang (2009) analyzed a sample of 245 firms selected from the S&P 500 in the time period 2000–2004 and found no association between Sarbanes-Oxley Act compliance and firm value measured by the total assets of the firm at the fiscal year's end.[284]

Dharmapala and Khanna (2013) examined a sample of 4,000 Indian firms in the period 1998–2006. In 2004, India introduced Clause 49 to improve the corporate governance in all listed companies. In the corporate hierarchy, two types of management are envisaged: (1) companies managed by a board of directors and (2) companies managed by a managing director, who is subject to the control and guidance of the board of directors. According to Clause 49, for a company with an executive chairman, at least 50% of the board should comprise independent directors. In the case of a company with a non-executive chairman, at least one-third of the board should be independent directors. The Indian corporate governance regime is to a certain degree comparable to the European public company (SE). In the SE, [285] the founding shareholders can opt for the one-tier or two-tier system. Dharmapala and Khanna (2008) interpret their results as evidence that Clause 49 has an impact on firm value.[286]

[283] Chhaochharia, V., & Grinstein, Y. (2007). Corporate Governance and Firm Value: the Impact of the 2002 Governance Rules. *The Journal of Finance*, 62(4),1789-1825, p. 1822.

[284] Switzer, L.N., & Tang, M. (2009). The Impact of Corporate Governance on the Performance of US Small-Cap Firms. *International Journal of Business*, 14(4), 343-357.

[285] SE is the abbreviation for Societas Europaea which means public limited company

[286] Dharmapala, D., & Khanna, V. (2013). Corporate Governance, Enforcement, and Firm Value: Evidence from India. Journal of Law, Economics and Organization, Oxford University Press, 29(5), 1056-1084., p. 1082.

However, their documentation shows an R-squared of 0.04 for the impact on Tobin's q in the course of implementation and strengthening of Clause 49.[287] Furthermore, they interpret their results as evidence for a more than 6% increase of firm value, which comply with Clause 49. However, how this result was calculated is not really transparent and is all the more surprising in the face of the weak R-square value.

The three studies mentioned are the only empirical studies that examine the influence of different corporate governance regimes on the development of the company's value based on larger samples. However, these studies mention no other studies with similar research design. Since these studies correspond to the research design of this study, it should be noted that research in this field is not very extensive so far and the findings of the few studies provide no clear evidence.

2.3. Prior Empirical Research Concerning the German Governance System and Firm Performance: Research Findings (after 2008)

In recent years, further studies are published concerning the effect of corporate governance on firm performance. Due to the growing formalization through country-specific codification, the problem of comparability of results arises.[288] Consequently, one-country approaches are preferred. Thus, Conheady et al. (2015) examine only Canadian-listed companies, Fuzi et al. (2016) focuses only on Malaysian-listed companies, Rose (2016) on Danish, and Akbar et al. (2016) on British-listed companies.[289] However, measured governance variables remain in the research mainstream as identified in the last sections such as board independence, role duality, board size, number of committees, and meeting frequencies. However, further cross-country studies could not be identified in scientific

[287] Dharmapala, D., & Khanna, V. (2013). Corporate Governance, Enforcement, and Firm Value: Evidence from India. Journal of Law, Economics and Organization, Oxford University Press, 29(5), 1056-1084., p. 1079.

[288] OECD (2015): G20/OECD Principles of Corporate Governance: OECD Report to G20 Finance Ministers and Central Bank Governors. Paris: OECD, p. 13; Rose, C. (2016). Firm performance and comply or explain disclosure in corporate governance. *European Management Journal*, 34(3), 202-222, p. 202.

[289] Conheady, B., McIlkenny, P., Opong, K. K., & Pignatel, I. (2015). Board effectiveness and firm performance of Canadian listed firms. *The British Accounting Review*, 47(3), 290-303; Fuzi, S. F. S., Halim, S. A. A., & Julizaerma, M.K (2016). Board Independence and Firm Performance. *Procedia Economics and Finance*, 37, 460-465; Akbar, S., Poletti-Hughes, J., El-Faitouri, R., & Shah, S. Z. A. (2016). More on the relationship between corporate governance and firm performance in the UK: Evidence from the application of generalized method of moments estimation. *Research in International Business and Finance*, 38, 417-429; Rose, C. (2016). Firm performance and comply or explain disclosure in corporate governance. *European Management Journal*, 34(3), 202-222

journals for the last years. Filatotchev et al. (2012) criticize empirical cross-country studies concerning the validity of their results because the nature and extent of 'hard laws' and 'soft laws' diverge in such a manner that cross-country comparability is not given.[290] This conclusion is supported also by Meier and Meier (2013), comparing the governance regulations of the US, the UK, Germany, Netherlands, and Switzerland. Particularly, the German model differs from other governance systems because of its stakeholder focus.[291] Therefore, the focus of the present study is only on German companies, same as the focus of a few other studies discussed in the following paragraphs.

Concerning the German Corporate Governance Code and its effect on firm performance, only a few empirical studies were published in the last five years, mainly in the form of Ph.D. theses. The research in academic journal databases such as JSTOR, EBSCO, and others has not provided any empirical study in the framework of the research question of this study referring to the German good corporate governance system. Whereas some recent studies have analyzed specific effects such as the cost of capital and the compliance level,[292] only a few detailed in-depth studies were published in the last years examining performance effects. Thus, for example, Stiglbauer (2010) has examined a set of 113 companies from the DAX30, TecDax, MDAX, and SDAX regarding firm-specific characteristics[293], which is the same total population examined in this study, although the sample of this study with 128 companies is larger. Therefore, Stiglbauer (2010) argues that the implications of his study are valid for all German listed companies.[294] He has measured firm performance in terms of profitability using the return on assets (ROA), total shareholder return (TSR), and return on equity (ROE). Stiglbauer (2010) mentions six prior studies examining the effect of corporate governance on firm performance among German companies whereas all these studies have an observation period prior to 2005, which is three years after the introduction of the first version of the

[290] Filatotchev, I., Jackson, G., & Nakajima, C. (2013). Corporate governance and national institutions: A review and emerging research agenda. *Asia Pacific Journal of Management*, 30, 965–986.

[291] Meier, H. H., & Meier, N. C. (2013). Corporate Governance: An Examination of U.S. and European Models. *Corporate Board: Role, Duties & Composition*, 9(2), 6-11.

[292] Kaspereit, T., Lopatta , K., Zimmermann, J. (2015). Does compliance with the German Corporate Governance Code pay off?: An investigation of the implied cost of capital. *Journal of Risk Finance*, 16(3), 344 - 376.

[293] Stiglbauer, M. (2010): *Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt.* Wiesbaden: Springer Gabler, p. 4.

[294] Stiglbauer, M. (2010): *Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt.* Wiesbaden: Springer Gabler, p. 4.

German Corporate Governance Code.[295] These studies have examined a period of one to three years whereas the largest sample includes 138 companies. Stiglbauer (2010) notes also that the specific German governance system does not allow comparison of the results with other research studies in other countries.[296] His main results with relevance to the research question of this study are: (1) Firm size correlates with the degree of compliance with the German Corporate Governance Code;[297] (2) The degree of compliance is negatively correlated with the ROA, TSR, and ROE.[298]

His study differs from this study concerning the observation period of only one year (2008), while this study observes a five-year period. Furthermore, Stiglbauer (2010) has not examined the effect of single corporate governance characteristics and their cumulative effect on firm performance because he has applied a scoring card system resulting in a corporate governance rating for each company. Instead, this study has not reduced detailed information on governance characteristics to a single value.

Ebeling (2015) has examined the implementation degree of the corporate governance code and its effect on firm value among the companies of the German Real Estate Index (DIMAX), including 75 companies, whereas only 54 companies are included in the sample due to different reasons. The observation period is reduced to a single year (2010) whereas his analysis is limited to the descriptive statistics listing the implementation degree of all companies concerning all recommendations of the German Corporate Governance Code and the calculation of average values for every recommendation. His main conclusion is that the majority of the companies included in the sample comply with the German Corporate Governance Code only partially.[299] The main difference from this study is that only the compliance degree was determined without analyzing correlations between good corporate governance and performance indicators.

---

[295] Stiglbauer, M. (2010): *Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt.* Wiesbaden: Springer Gabler, p. 61.

[296] Stiglbauer, M. (2010): *Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt.* Wiesbaden: Springer Gabler, p. 66.

[297] Stiglbauer, M. (2010): *Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt.* Wiesbaden: Springer Gabler, p. 194.

[298] Stiglbauer, M. (2010): *Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt.* Wiesbaden: Springer Gabler, pp. 190-191.

[299] Ebeling, P.-C. (2015). *Corporate Governance kapitalmarktorientierter Immobiliengesellschaften* (Schriften zu Immobilienökonomie und Immobilienrecht. Regensburg: International Real Estate Business School, p. 163.

Mustaghni (2012) has examined the effect of good corporate governance on different performance indicators such as firm value (excess value (EV), actual value (AV), economic value added (EVA), and profitability (ROA and ROIC), including 85 German companies in the time period 2005–2008.[300] He has used corporate governance ratings of the Risk Metrics Group, a US rating agency, to quantify the corporate governance quality. He has applied a research design that is comparable to this study. He has analyzed the firm performance in two groups, the one including companies with the highest and the other including companies with the lowest rating to test differences in firm performance, whereas this study has grouped the sample according to firm performance to test the differences in the compliance degree. And, similarly to this study, he has analyzed also the correlations of the total sample between performance indicators and good corporate governance although with different good corporate governance variables provided as already calculated scorings from the rating agency for 51 corporate governance dimensions. Furthermore, similarly to this study, he has analyzed, as well as this study, the cumulative effect of variables with the multiple regression analysis. The results of his regression analysis do not indicate any significant effects on firm value or firm profitability of the eight variables included in his regression model except the correlation of r =0.18 between good corporate governance and economic value.[301] Consequently, Mustaghni (2012) has found evidence of a slight effect of higher scoring for the supervisory board compensation policy on firm valuation (EV) for larger companies.[302] Other conclusions such as structure and quality of the supervisory board having a slightly positive effect on profitability are questionable because he has provided only the correlation coefficients without mentioning the significance level. Furthermore, his study does not explain the rating agency scoring calculations, which may be the result of a lack of transparency on the side of the rating agency. Other studies, such as Roos (2005) and Scholz (2006), have investigated German companies for a period prior to 2005 or only with a limited

[300] Mustaghni, B. (2012). *Einfluss von Corporate Governance auf den Erfolg von Unternehmen: eine Untersuchung börsennotierter Unternehmen in Deutschland* (Europäische Hochschulschriften). Bern: Lang.

[301] Mustaghni, B. (2012). *Einfluss von Corporate Governance auf den Erfolg von Unternehmen: eine Untersuchung börsennotierter Unternehmen in Deutschland* (Europäische Hochschulschriften). Bern: Lang, p. 134.

[302] Mustaghni, B. (2012). *Einfluss von Corporate Governance auf den Erfolg von Unternehmen: eine Untersuchung börsennotierter Unternehmen in Deutschland* (Europäische Hochschulschriften). Bern: Lang, p. 137.

focus such as in the Hau and Thum (2010) study that investigated 29 banks and their board characteristics concerning their risk management in the financial crisis.[303]

Considering the discussed studies, it can be stated that this study includes the largest sample (128 companies) with the longest observation period (5 years). The second main difference is that total shareholder return is used as a dependent variable, which should be seen as the main variable in the context of the agency theory and the shareholder value debate presented in Chapter 1. Measures such as firm value applied by Mustaghni (2012) may be relevant in the framework of examining a sample of companies for which no market value is available, such as for private companies.[304] Concerning the research design, Mustaghni's study is the most comparable to this study. However, this study does not use scoring data from rating agencies, which do not publish their scoring methods. Instead, this study uses original data from the companies' corporate governance compliance declarations. In this respect, the mentioned studies are to be distinguished from this study by their scope, method, time period, measures, and data collection approach.

2.4. Summary of Prior Research

Corporate governance codes regulate structures, procedures, responsibilities, and rights of individuals involved in the corporate decision-making process. The supervisory board adopts given rules concerning procedures for the work and collaboration between the supervisory board and management board, determines the key indicators for management performance, sets up committees to which they contribute their expertise, etc. with corresponding consequences for the company's strategic direction and the quality of aligning interest and conflicts among different stakeholder groups. As discussed in Chapter 1, this framework should have an impact on firm performance and the fulfillment of stakeholder interests.

Therefore, this chapter has examined the empirical research concerning firm performance, stakeholder interest fulfillment, and corporate governance since 1986. It was found that the

[303] Roos, S. (2005). Unternehmensperformance nach Vorstandswechsel: Eine empirische Analyse zur Effizienz deutscher Aufsichtsräte. Würzburg: Universität Würzburg; Scholz, F. (2006). *Determinanten von Aufsichtsratsarbeit und ihre Entwicklung. Eine explorative Studie mit Insidern über Aufsichtsräte börsennotierter deutscher Aktiengesellschaften*. Bielefeld: Universität Bielefeld; Hau, H., & Thum, M. (2010). *Subprime Crisis and Board (In-)Competence: Private vs. Public Banks in Germany*. Fontainebleau: INSEAD.

[304] Mustaghni, B. (2012). *Einfluss von Corporate Governance auf den Erfolg von Unternehmen: eine Untersuchung börsennotierter Unternehmen in Deutschland* (Europäische Hochschulschriften). Bern: Lang.

literature can be divided into two sections whereas the caesura is determined by the Sarbanes-Oxley Act. Accordingly, the literature review has distinguished the period prior to 2005 and after 2005. Friedman (1970), as the starting point for the shareholder value discourse and the criticism of corporate responsibility and corporate governance,[305] stated that management's objective is to provide benefit for owners (shareholders), "*because they are the stakeholder group which really took over risk*".[306] As stated in Chapter 1, the principal agent theory expounds the issues that may lead to inefficiencies to meet this objective. The shareholder discourse, which arose in the 1970s, aimed at finding solutions to overcome inefficiencies through the introduction of corporate governance rules and has developed a framework for reasonable rules and regulations to design more efficient corporate governance standards, which should benefit more shareholders' interest. However, it took some scandals making visible the inefficiencies of the existing regulations so that several countries introduced corporate governance codices since 2003.

Accordingly, empirical research concerning the influence of corporate governance on firm performance and particularly on shareholder return provided different results after 2005. It was stated in this study's literature review that empirical research prior to 2005 determined larger cross-company differences than after 2005. Thus, several studies found that companies with good corporate governance have better long-term performance for shareholders or in terms of general firm performance. This applies in particular regarding stock price performance, whereas research prior to 2005 focused mainly on board size, role duality and the role of independent non-executive board members. However, it is apparent that empirical research prior to 2005 has focused mainly on relatively formal characteristics, whereas the measured correlations in several studies concerning corporate governance indicators and firm performance were generally high.

These relatively clear results were no longer achieved after 2005. Based on the included studies, the literature review has determined that in the post-Sarbanes-Oxley period, the influence of corporate governance characteristics in cross-country studies remain, while one-country studies determine lower correlations between firm performance and corporate governance differences. Therefore, the assumption is that due to the unification of firm-specific governance regimes as a result of the introduction of corporate governance codices in

[305] Stout, L. A. (2012). New Thinking on Shareholder Primacy. In P. M. Vasudev S. Watson (eds.), *Corporate Governance After the Financial Crisis* (pp. 25-). Cheltenham: Edward Elgar, pp. 25-26.

[306] Friedman, M. (1970). The Social Responsibility of Business is to Increase its Profits, *The New York Times Magazine (*23 September 1970), 32-33, p. 32.

several countries, the research results indicate less clear evidence concerning the influence of corporate governance on firm performance.

It can be stated finally that the empirical research in the years before corporate governance was regulated by law and codes in most industrialized or emerging countries (prior to 2005) indicates that differences in firm performance exist between companies with and without explicit corporate governance. Comparatively, research in the post-Sarbanes-Oxley period—characterized by an increasing homogenization of corporate governance within countries—tends to provide more neutral or even negative results. Furthermore, the higher differentiation between the countries' good corporate governance systems represented by their different corporate governance codes questions the research value of cross-country studies on firm level, as discussed in Section 2.3. The related consequences for further research are: (1) cross-country samples on firm level do not provide clear results; (2) the corporate governance differences on firm level within one country should be less pronounced, which may also lead to the effect that differences in corporate governance characteristics between companies will be related increasingly less with differences in distinct performance parameters, such as total shareholder return, revenue growth, or profitability. However, the studies discussed in Chapter 2 provide the framework and reference for the research design developed in the following Chapter 3 and the discussion of results provided by the data analysis presented in Chapter 4.

3. RESEARCH DESIGN AND METHODS FOR ANALYZING THE GOVERNANCE IMPACT ON FIRM PERFORMANCE

Based on prior research as discussed in Chapter 2 and further findings from the theory discussion provided in Chapter 1, this chapter develops in Section 3.1 a factor model constituting the empirical research framework. Thirteen factors are identified based on the variable sets of prior research and other variables, which are available due to the German regulation requiring compliance declarations allowing to collect data such as board compensation and management remunerations that are relevant in the theoretical framework of the governance discourse in terms of incentive effects. Thus, for example, the German Corporate Governance Code requires that supervisory board compensation should be linked with firm performance.

Section 3.2 explains the selection of the different performance parameters. Three performance parameters are tested in the data analysis: (1) revenue growth as an indicator for management success in the market, which is also in the employees/unions interest due to the job creation effect; (2) the return on invested capital (ROIC) as an indicator for management's ability of efficient asset/capital allocation; and (3) total shareholder return indicating the degree to which management fulfills shareholder interests. Accordingly, the following chapters refer to firm performance and shareholder interest fulfillment as two different aspects of performance. While firm performance indicates that management is running the business successfully in terms of market performance and efficiency, the latter indicates the degree to which they serve the shareholders with their management activities. Hence, Section 3.2 discusses both performance perspectives in the context of prior research. Section 3.3 derives from the main hypothesis and overall research questions the statements to be defended which are operationalized in several research propositions as the basis for the data analysis procedure. Section 3.4 presents and explicates the data collection process in terms of data sources, calculation of variables and further details such as the handling of data fluctuation in the observation period. Finally, Section 3.5 explains why specific tests are conducted in their respective form.

3.1. Development of a 13-Factors Research Model of 'Good` Corporate Governance

The OECD (2015) recently stated that every country has its own good corporate governance system consisting of country-specific history, tradition, and circumstances.[307] To define something comparable to a general standard, the OECD "G20/OECD Principles of Corporate Governance" (2015) provides only general recommendations such as "*The corporate governance framework should be developed with a view to its impact on overall economic performance, market integrity and the incentives it creates for market participants and the promotion of transparent and well-functioning markets*" or "*Conflicts of interest inherent in related-party transactions should be addressed*".[308]

Even empirical research in high-ranked journals, such as the *Strategic Management Journal*[309], do not provide a model of good corporate governance or a factor model. Thus, for example, Castaner and Kavadis (2013) examine explicitly good corporate governance without defining the term which is mentioned only once in the total number of 14 pages.[310] Instead, their corporate governance 'model' seems to be more or less a contingent collection of several variables such as board independency, ownership structure, CEO compensation, and other variables. Berghe (2012) reviews the international standardization of good corporate governance, stating that this term is only applied as a general term, which is not explicitly defined in any code. [311] He concluded that every country has its own implicit system consisting of a more or less systematic collection of various rules.[312] Questions such as how to establish effective control procedures and incentive options remain unanswered. Instead, general statements such as only incentives in conjunction with comprehensive control can

[307] OECD (2015): *G20/OECD Principles of Corporate Governance: OECD Report to G20 Finance Ministers and Central Bank Governors*. Paris: OECD, p. 13.

[308] OECD (2015). *G20/OECD Principles of Corporate Governance: OECD Report to G20 Finance Ministers and Central Bank Governors*. Paris: OECD, pp. 14, 27.

[309] Highest rating, for example, in the ABS Academic Journal Quality Guide and the Erasmus Research Institute of Management Journals List.

[310] Castaner, X., & Kavadis, N. (2013). Does Good Governance prevent bad strategy? A study of corporate governance, financial diversification, and value creation by French corporations, 2000-2006. *Strategic Management Journal*, 34, 863-876.

[311] Berghe, A. (2012). I*nternational Standardisation of Good Corporate Governance: Best Practices for the Board of Directors* (2nd ed.). Dodrecht, Springer Science, p. 6.

[312] Berghe, A. (2012). I*nternational Standardisation of Good Corporate Governance: Best Practices for the Board of Directors* (2nd ed.). Dodrecht, Springer Science, p. 6.

actually cause effective management control which prevail[313] and have been criticized in recent research.[314]

Consequently, a research design in this research field can only be guided by prior research, the selection of a good governance reference model, and the availability of data. First, Berghe's (2012) literature review has identified board independence, board compensation, board size, meeting frequency, and the number of committees as main governance characteristics of prior studies which are included in the research model (see Figure 2).

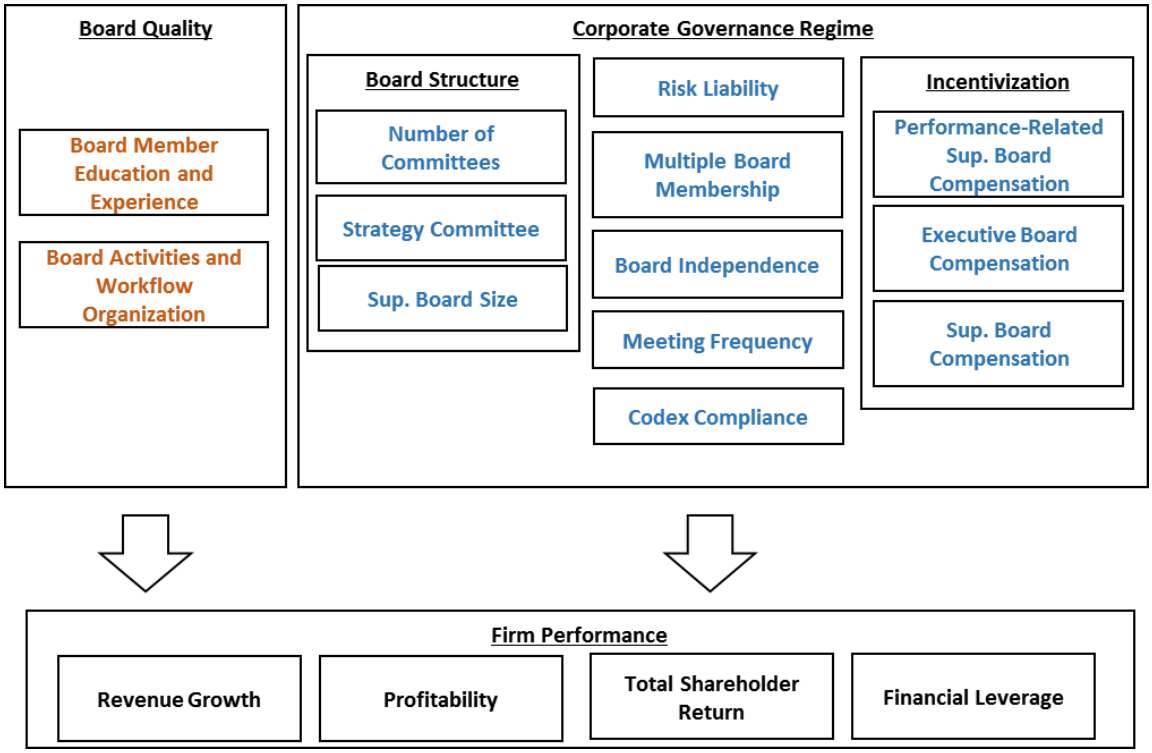


Figure 2. 13-Factors Research Model of Good Corporate Governance

Source: Own presentation.
Note: The factors in red are subject to the qualitative research within this study, the factors in blue are subject to the quantitative research.

Second, this study has stated that—since every country has its own governance system—the cross-country approach should be avoided. Instead, this study is based on the German corporate governance system, which is- as explained- very different from the Anglo Saxon

[313] Bainbridge, S. M. (2016). *Corporate Governance After the Financial Crisis*. Oxford: Oxford University Press, p. 101.

[314] Borckman, P., Lee, H. S., & Salas, J. M. (2016). Determinants of CEO compensation: Generalist–specialist versus insider–outsider attributes. *Journal of Corporate Finance*, 39, 53-77.

approach perceived in international research and by international organizations, such as the OECD, as a benchmark of a governance regimes. And third, the availability of data is limited by the data provided by the governance compliance declarations of German companies required by German law. Therefore, a 13-factor research model of good corporate governance has been derived, which is the basis for this empirical research (see Figure 2).

The mentioned factors can be pooled into two meta-factors which are board quality and corporate governance regime. Board quality refers to qualitative factors; corporate governance regime includes the quantitative factors (see Figure 2). The eleven quantitative factors describing the corporate governance regime are operationalized by 16 corporate governance variables. The factor code compliance is operationalized by six variables, including the overall compliance of the firm with the German Corporate Governance Code and its compliance in selected essential parts of the code.

3.2. Selection of Performance Indicators

A further question regards to which firm performance indicators should be selected. This study's selection is based on a literature review in the field of firm performance research. Delmar (1997; 2003) found that turnover, revenue, or sales are the most frequently applied performance measures (30%), while 29% use number of employees.[315] Shepherd and Wiklund (2009) noted that 60% of the studies examining firm performance apply revenue growth, respectively, sales growth as a performance metric; 12% apply employee growth; 14% apply profit and profitability ratios, and 14% apply other measures.[316] According to Achtenhagen et al. (2010), almost 50% of the empirical studies measure firm performance as revenue growth and 30% apply staff number growth as growth metric (see Table 1 and Table 2).[317]

[315] Delmar, F., 1997. Measuring growth: methodological considerations and empirical results. In R. Donckels, & A. Miettinen (Eds.), *Entrepreneurship and SME Research: On its Way to the Next Millennium* (pp. 199–216). Aldershot: Ashgate; Delmar, F., Davidsson, P., & Gartner, W. B. (2003). Arriving at the High-Growth Firm. *Journal of Business Venturing*, 18(2), 189-216.

[316] Shepherd D. & J. Wiklund (2009). Are we comparing apples with apples or apples with oranges? Appropriateness of knowledge accumulation across growth studies. *Entrepreneurship Theory and Practice*, 33(1), 105-123.

[317] Achtenhagen, L., & Naldi, L., & Melin (2010). Business Growth —Do Practitioners and Scholars Really Talk About the Same Thing? *Entrepreneurship Theory and Practice*, 34(2), 289-316, p. 293.

Table 1. Firm Growth Measures in Various Studies (2005–2014)

Measures	Authors
Net sales, turnover, revenue, sales growth	Shaw, Duffy, Johnson, and Lockhart (2005); Gardner (2005); Simsek, Veiga, Lubatkin, and Dino (2005) Zatzick & Iverson (2006); Sine, Mitsuhashi & Kirsch (2006); Arthaud-Day, Certo, Dalton & Dalton (2006); Moreno & Casillas (2007) Hölz (2009); Anaydike-Danes et al. (2009); Evangelista & Vezzani, (2010); Cassia & Minola (2012); Murmann et al. (2014); Beers & Zand, (2014); Coad et al. (2014)
Operating income, Net income, Earnings, EBITDA	Shaw, Gupta & Delery (2005);
Market share	None
Employment growth	Shaw, Duffy, Johnson, and Lockhart (2005); Hölz (2009); Murmann et al. (2014); Anaydike-Danes et al.(2009); Carznitzki & Delanote (2013); Barbaro et al. (2014)
Basic earning power (BEP)	None
Productivity	Boer & During (2001); OECD, 2006; Rocchina-Barrachina et al. (2010); Urgal et al. (2013)
Return on Equity (ROE)	Shaw, Gupta & Delery (2005); Westphal & Bednnar (2005)
Return on investment (ROI); return on invested capital (ROIC)	Luo (2005); Tan & Tan (2005)
Return on assets (ROA)	Miller & Eden (2006); Arthaud-Day, Certo, Dalton & Dalton (2006); Sanders & Tuschke (2007); Goerzen & Beamish (2005)
Total shareholder return (TSR), stock return; price/book ratio	Kumar (2005); Johnson et al. (2005)
Value-added measures such as EVA (economic value-added), etc.	None

Source: Author's presentation based on a selective evaluation of Management Journal, Administrative Quarterly and Strategic Management Journal (2005–2014) as well as on Achtenhagen, Naldi & Melin (2010).[318]

[318] Achtenhagen, L., & Naldi, L., & Melin (2010). Business Growth —Do Practitioners and Scholars Really Talk About the Same Thing? *Entrepreneurship Theory and Practice*, 34(2), 289-316, p. 293.

Table 2. Frequencies of Growth Indicators in SME Studies

Variables	U.S.-based/Europe-based journals	Total	Percent
Growth measure			
Sales/turnover	17/6	23	41.8
Employees	10/5	15	27.3
Growth willingness/Growth intention	6/4	10	18.2
Profitability	3/1	4	7.3
Combinations of the previously mentioned measures	5/4	9	16.4
Growth strategies (e.g., diversification; product extension; internationalization)		9	16.4
Others (e.g., assets; value added)	0/4	4	7.3
Not reported	4/1	5	9.0
N	38/17	55*	
Motivation for choice of measure			
(–)	19/13	32	58.2
(+)	15/3	18	32.7
Partial, referring to prior studies	4/1	5	9.1
N	38/17	55*	

Source: Achtenhagen et al., 2010, p. 293.[319]

Therefore, it can be stated that the overwhelming number of firm performance studies apply financial measures and ratios, which leads to the conclusion that firm growth is generally measured in its quantitative dimension. Within the framework of this study, firm performance cannot be reduced merely to firm financials reflecting only the operational and strategic performance of the company's management. Therefore, this study also includes not merely revenue growth and the return on invested capital as measures of management performance, indicating if the supervisory board activities and the corporate governance regime of the firm exert a positive effect on management performance. This study also examines whether the supervisory board is actually acting in the interest of the shareholders by measuring the total shareholder return and the financial risk the supervisory board is accepting.

The concept of shareholder value as a guiding principle of corporate governance has been critically discussed in recent years. The approach may lead to excessive profit-driven, short-term orientation of management, and negative consequences for the overall welfare for the labor market, etc. Regardless of the extent to which the focus on total shareholder value as a corporate goal leads to various negative effects, it should be noted that the classic objectives of management do not define key performance indicators based on the largest benefit to

[319] Achtenhagen, L., & Naldi, L., & Melin (2010). Business Growth —Do Practitioners and Scholars Really Talk About the Same Thing? *Entrepreneurship Theory and Practice*, 34(2), 289-316.

shareholders. Usually, three categories of classical management objectives can be distinguished:[320]

(1) Such goals are referred to tangible objectives which relate to a company's range of products and services in each market. These include statements about the company's activities in general and in specific markets and are measured in market share, sales figures, revenue growth, etc.

(2) Value objectives include requirements regarding the company's future financial results to be achieved.

(3) Goals are also referred to social objectives which relate to desired behavior regarding internal and external stakeholders such as employees, the media, etc.

From the perspective of shareholder primacy, however, the focus on maximizing the market value of shares and the highest possible dividend is to be seen as main objectives. Instead, managerial models typically assume that managers, instead of maximizing profit, maximize their utility function concerning salary, perks, security, power, prestige, etc. Thus, corporate governance should be a mechanism to reduce transaction costs in the firm between 'equity holders' and 'equity trustees'. Therefore, total shareholder return (TSR) is not only useful as a management key performance indicator particularly in conjunction with, for example, management compensation, but also as a measure to validate governance performance, because governance is the result of management decisions and the supervision of management decisions and activities by the supervisory board. As conflicts of interest, costs of asymmetric information, and agency costs in general cannot be observed directly, TSR allows the measurement of the efficiency of management and supervisory board cooperation in allocating stockholders' equity in the interest of the shareholders.

Coad and Hölzl (2010) state that "*recent research has led to the empirical regularity that firm growth rate distributions are heavy tailed. This finding implies that a few firms experience spectacular growth rates and decline, but that most firms have marginal growth rates*."[321] This means that firm growth is not determined by accident or by business cycles but by

[320] Aras, G. &, Crowther, D. (2012). *Governance and Social Responsibility: International Perspectives*. New York: Palgrave MacMillan, p. 10.

[321] Coad, A., & Hölzl, W. (2010). *Firm Growth: Empirical Analysis* (Paper on Economics and Evolution. Jena: Max Plank Institute of Economics, p. 1.

decision making concerning the allocation of resources. Resources that result in a competitive advantage are (1) distributed heterogeneously across firms, rare, substitutable, and not imitable; (2) cannot be transferred between firms without transactions costs; and (3) cannot be bought in resource markets.[322] According to resource-based models, firm growth (performance) depends on the configuration of internal resources and competences such as the human capital of employees and the social capital of managers or entrepreneurs, physical capital in the form of plants, machines, etc., financial capital such as private equity or debt capital, and organizational capital in the form of incorporated knowledge of the company. Resource-based models are generally descriptive models, as they are not measuring relationships between variables.

According to the microeconomic theory of the firm, the optimal size of a company's production capacity is reached at the point where the additional cost of an additional unit of output is equal to additional return, which is, in terms of accounting, the break-even point. Thus, achieving the optimal size of the company would be simultaneously a rational firm growth limit, beyond which further investment activities generate only risks out of investment failures in the framework of entering new product markets, internationalization, etc. Thus, firm growth would only be rational to a certain degree. Why should a company in a quasi-monopolistic market grow? Or why should a company in a polypolistic market outperform market growth in upward market cycles? Theoretically, from the point of view of sustainable 'growth' concepts, it would apply that as long as the firm can cover its costs for capital expenditures, growth is unnecessary, resulting only in investment risks.[323] Coase (1937), one of the founders of theory of the firm, stated: "*As a firm gets larger, there may be decreasing returns for the entrepreneur function, that is, the costs of organizing additional transactions within the firm will rise*."[324] This statement is in line with the microeconomic assumption that marginal costs define a rational limit of firm growth (diseconomies of scale).[325]

Accordingly, three institutional reasons can be cited for the rationality of growth: (1) investor interests, such as shareholders or owners, to maximize the return on equity and capital

[322] Jashapara, A. (2004) *Knowledge Management: An Integrated Approach*. London: Financial Times Prentice., p. 166.

[323] Crowther, D., & Seifi, S. (2011). *Corporate Governance and International Business*. Copenhagen: Ventus, p. 50.

[324] Coase, R. H. (1988) [1937]. *The Firm, the Market, and the Law*. Chicago: University of Chicago Press, p. 43.

[325] Boland. L. A. (2014). *Methodology for a New Microeconomics: The Critical Foundation* (3rd ed.). New York: Routledge, p. 38.

employed; (2) competition driving investments in new products; and (3) external innovation requiring corporate investment activities to keep pace with technological advances.[326] The first 'rational' reason is effective through incentives in the principal–agent relationship and is thus an internal issue of corporate governance; the second and third reasons are external drivers. Consequently, this research focuses on different forms of performance: (1) firm performance and (2) total shareholder return performance. Firm performance is measured as 5-year revenue growth as an indicator for the management's market success and business leading performance, while the 5-year total shareholder return growth indicates the degree of shareholder interest fulfillment. The third measure reflects both aspects. The return on invested capital (ROIC) indicates, on the one hand, that total capital is allocated efficiently. This indicates that the principal's agent acts well on behalf of the principal, and on the other hand, that the company's management is well selected by the supervisory board. This is because a higher ROIC mirrors the management's capability to find and develop new profitable markets and products and that the existing products and markets are supplied based on cost-efficient operations.

Corporate governance defines a system of responsibilities, rights, obligations, and monitoring routines to fulfill the interests of shareholders or owners, the capital market, and other stakeholders to find a balance between the company's external claims and operational requirements to establish a set of mechanisms through which outside investors protect themselves against expropriation by insiders.[327] Firm performance is, in the framework of the theory of the firm, not simply a result of strategies and managerial activities but a result of the complex interplay between different institutions whose relationships are regulated in the corporate governance framework (corporate governance regime).

The question is how the inter-related effects in this model can be measured. Rappaport (1981) notes that managers and boards of directors must create economic value for their shareholders,[328] whereas Friedman (1970) demands that the only management responsibility is simply to "*increase profits.*"[329] The discourse in the following decades on good corporate

[326] Clarke, T. (2007). *International Corporate Governance: A Comparative Approach*. Milton Park: Routledge, p. 260.

[327] La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (2000). Investor protection and corporate governance. *Journal of Financial Economics*, 58, 3-27, p. 4.

[328] Rappaport, A. (1981). Selecting Strategies that Create Share. *Harvard Business Review*, 59, 139-149, p. 148.

[329] Friedman, M (1970). The Social Responsibility of Business is to Increase its Profits, *The New York Times Magazine (*23 September 1970), 32-33, p. 32.

governance can thus be seen as a discussion for more appropriate institutions of management control. A provisional climax of this discourse represents the introduction of various corporate governance laws and rules, since about 2002, in various countries as a result of some scandals on shareholder costs (see Chapter 1). Therefore, the whole development of a firm and, in particular, the financial performance of a firm is shaped not only by managerial decision-making but by supervisory board decisions, the specific corporate governance 'regime of a company' and, not least, also by board activities through consulting, monitoring, and evaluating managerial activities.

To measure the impact of corporate governance on firm performance, structural features of the board and governance regime of a company must be examined. However, management resource allocation decisions remain a black box in this study and are only measured by the variable *firm performance* in its dimensions of revenue growth, profitability, and total shareholder return growth. Concerning the three measurement dimensions of (1) good corporate governance; (2) supervisory board activities, procedures and required competence; and (3) firm performance the following applies:

(1) Firm performance, as the dependent variable in this study, is directly observable. Firm performance is measured in this study mainly as total shareholder return growth, and, secondly, revenue growth and profitability (ROIC), so that three different perspectives are selected: (1) the shareholder view, (2) the market-based view with the variable revenue growth as proxy for market success and thus also – as a stakeholder view – growth in the number of employees, and (3) profitability as management performance, which should be a result of appropriate supervisory board activities.

(2) Good corporate governance is observed by deviations from the good corporate governance benchmark provided by the German Corporate Governance Code and is measured in quantitative terms as total number of exceptions from the total German Corporate Governance Code and as exceptions from selected core parts of the code. Additionally, board size, number of committees, compensations, etc. are collected as well from the annual reports. Some data are calculated, based on given financials such as the share of management costs to revenue.

(3) Board activities, procedures, and required competence are observed indirectly through the conduct of expert interviews among 30 participants. The participants are

supervisory board members of companies among the total shareholder return groups (TSR 30:30 group).[330]

3.3. Research Questions, Hypothesis and Research Propositions

The empirical part of this study analyzes the relationship between structural characteristics of supervisory boards and firm performance as well as the total shareholder return. Therefore, all companies listed in the four main German stock indices (DAX 30, MDAX, SDAX, and TecDAX)–for which the financial data and governance data are completely available for the observation period (2010–2014) are analyzed using descriptive, bivariate, and multiple regression analysis. To achieve the research aim, the empirical analysis is based on the following research questions derived from the main hypothesis:

(1) Do good corporate governance and board activities explain firm performance differences and the fulfillment of shareholder interests?

(2) Which corporate governance characteristics distinguish top-performing from non-performing companies?

The first question can be answered by descriptive statistics, bivariate correlation analysis, and multiple regression analysis as well as with the survey as the qualitative part of the empirical study, while the second question can be answered by filtering and grouping the total sample regarding their total shareholder return performance applying the t-test.

The main hypothesis of this dissertation is phrased as follows:

> H0: Good corporate governance in terms of full compliance with the German Corporate Governance system represented in the form of the German Corporate Governance Code (DCGK) leads to a better firm performance and higher total shareholder return.

The main hypothesis is operationalized through the following statements for defense:

(1) Companies with a higher degree of good corporate governance show a better firm performance and a higher fulfillment of shareholder interests.

[330] The TSR 30:30 groups are defined as the top-30 companies and the bottom-30 of the total sample in terms of total shareholder return growth in the observations period of this study.

(2) Companies coupling supervisory board compensation with firm performance perform better.

(3) The higher the level of good corporate governance, the higher is the management efficiency.

(4) The German Corporate Governance Code has leveraged the quality of board organization and supervisory quality, but has increased also the administrative workload, board procedures frictions and risk aversion.

(5) The required board competence must be situationally determined and adjusted.

The statements to be defended 1 to 3 are subject to the quantitative part of the study, based on financial data and corporate governance characteristics collected from the compliance declaration of each company among the sample. The fourth and fifth statements are subject to the qualitative part of the study based on the expert interviews.

To structure the quantitative data analysis procedure, the first three statements to be defended are refined by referring either to the total sample or groups among the sample and by referring to different board characteristics, respectively, performance measures. Aligned with the main hypothesis (H0), the research questions and the above-mentioned statements for defense, the following propositions (P) have been developed for the analytical part of this dissertation:

- P1: Companies with a higher degree of compliance with the good corporate governance benchmark (DCGK) have a better firm performance in terms of revenue growth and total shareholder return growth.
    - P1a: Companies with a higher degree of good corporate governance show a better firm performance.
    - P1b: Outperformers have a higher degree of good corporate governance than underperformers.
- P2: Companies with independent boards show a better firm performance in terms of revenue growth and total shareholder return growth.
    - P2a: Companies with independent board members show a better firm performance.

- P2b: The group of outperformers has more likely an independent board than underperformers.

- P3: Companies with a strategy committee show a better performance in terms of revenue growth and total shareholder return growth.
  - P3a: Companies with a strategy committee show a better performance
  - P3b: The group of outperformers has more likely strategic committee than underperformers.
- P4: Companies, in which the supervisory board compensation is coupled with firm performance, perform better in terms of revenue growth and total shareholder return growth.
  - P4a: Companies, in which supervisory board compensations is coupled with firm performance, perform better.
  - P4b: The group of outperformers shows a higher degree of performance-based compensation, than underperformers.
- P5: Companies with larger boards (board size) perform better in terms of revenue growth and total shareholder return growth.
  - P5a: Companies with larger boards perform better.
  - P5b: Outperformers have more supervisory board members than underperformers.
- P6: The higher the level of the division of labor in terms of the number of committees, the higher is the firm performance in terms of revenue growth and total shareholder return growth.
  - P6a: The larger the number of committees, the higher is the firm performance
  - P6b: Outperformers show a higher degree of supervisory board division of labor than underperformers.

- P7: The higher the level of good corporate governance in terms of a higher degree of compliance with the good corporate governance benchmark (DCGK), the higher is the management efficiency measured by the company's profitability (ROIC)
    - P7a: The higher the 'Good Governance' compliance, the higher is the management efficiency (ROIC).
    - P7b: ROIC-outperformers show a higher 'Good Governance' compliance than ROIC-underperformers.
- P8: The complete set of 'good corporate governance' factors (number of committees, executive board compensation, performance-related supervisory board compensation, strategy committee, level of compliance with DCGK, number of board meetings, board independence, supervisory board size, risk liability, and number of board members with more than one supervisory mandate) have a cumulative effect on firm performance.

The following assumptions underlying the propositions are being made:

(1) P1 and P8 assume that companies with a higher degree of compliance with the good corporate governance benchmark perform better in terms of revenue growth, total shareholder return growth, and profitability (ROIC). Consequently, the degree of compliance with the German Corporate Governance Code is a relevant factor in the research model whereas revenue growth measures management performance in terms of market success, shareholder total return measures the level of shareholder benefit, and profitability measures the management efficiency in allocation the firm's total capital.

(2) P2 assumes in accordance with prior research a relationship between board independency and performance, which is a hypothesis within the framework of prior empirical research discussed above. Insofar, board independence is also included in the research model.

(3) P3 assumes that a strategy committee may directly influence firm strategy and a guiding influence on management. Prior empirical research has not included this factor. However, it seems appropriate to include this factor because it can be assumed that a strategic committee is established by the board to influence corporate strategy.

(4) P4 assumes in accordance with the agency theory discussed in the theoretical part of this study that incentivisation in the form of linking compensation with firm performance has an effect on the supervisory board. Insofar, this factor is also included in the research model.

(5) P5 assumes in accordance with prior empirical research that board size may influence firm performance based on the assumption that a larger board may perform better due to a higher monitoring capacity increasing with the number of board members.

(6) P6 assumes that the level of the division of labor in terms of the number of committees increases also the monitoring efficiency of the board due to supervisory board specialization.

(7) P7 assumes that profitability increases with the degree of code compliance because the management is better monitored regarding their efficiency in capital allocation.

(8) P8 refers to all factors of the previous propositions and additional factors such as the frequency of board meetings, risk liability and executive compensation in their cumulative effect on firm performance. The frequency of board meetings is also a frequent factor in the empirical research as discussed above. Risk liability is a factor that is not included in prior research. However, the German Corporate Governance Code as a benchmark allows quantifying this factor, because German stock-listed companies must declare if they follow this specific recommendation. Executive compensation is also often a factor in prior empirical research and results from the agency theory within the framework of the incentivisation as a means to exert influence on management activities in the interest of shareholders.

Table 3 in Section 3.6 contains all research propositions and further details on the operationalization to perform a statistical analysis.

3.4. Collecting Data on Corporate Governance Characteristics and Company Performance

The research process involves several steps and different statistical tests conducted with the total sample as well as with subgroups. As mentioned, major changes in the German Corporate Governance Code have taken place in 2009 and 2010, so that companies were

required to declare in 2010 their compliance with the German Corporate Governance Code existing also in 2014 without further essential changes.[331] Therefore, the base year for this study is 2010.

The total sample consists of 128 German stock listed companies in the time period 2010–2014, for which the necessary data are completely available. The reduction of the complete sample of 165 companies listed in the DAX30, MDAX, SDAX, and TecDAX results from the non-availability of corporate governance reports of the excluded companies, mainly because these companies were not stock-listed in 2010 so that they were not obliged to publish a corporate governance compliance statement from which the governance data are collected. The financial data were collected in the first quarter 2015. For some companies, the annual report data for fiscal year 2014 were incomplete; therefore, these companies were excluded. For other companies, corporate governance data were not available for other reasons. Not all companies listed in 2014 were listed in the prior years. Some companies have conducted an initial public offering (IPO) in 2010–2014; others have changed their legal form to European Corporation (Societas Europaea, SE). Accordingly, the total sample is reduced by 37 companies, so that the research sample accounts for 128 companies.

According to the German Corporate Governance Code (DCGK), each stock-listed company must explain to what extent they comply with the DCGK rules. The compliance values and the data on board compensation, board size, and other data are collected from the annual reports and corporate governance compliance statements for 2010 and 2014; the financial data are collected for the 5-year period such as 5-year total shareholder return growth average, 5-year return growth, etc. Sections 3.4.1 and 3.4.2 discuss in-depth the reasons for this approach.

The empirical part of this study uses primary and secondary data. Primary data are collected through the survey, secondary data through financial databases and the analysis of annual reports and corporate governance code compliance statements. The main focus is on the quantitative analysis, which uses data that are not subjective. Rather, these data can be collected by any other researcher with the same results. The data source for firm performance metrics is Thomson ONE by Thomson Reuters and Morningstar Direct. Both databases are widely used in business research. Thomson ONE combines data from both databases with up

[331] Roth, M. (2013). Corporate Boards in Germany. In P. Davies, P. L. Davies, K. J. Hopt, R. Nowak & G. Solinge (eds.), *Corporate Boards in European Law: A Comparative Analysis* (pp. 253-366). Oxford: Oxford University Press, p. 292.

to 3.200 items (financial fundamentals, ratios, and other firm data) per company. The data concerning the corporate governance characteristics are retrieved from the annual reports containing the number of board members, number of committees, supervisory board and CEO compensation, etc. while further corporate governance characteristics are collected from the corporate governance reports containing the compliance declaration and thus data concerning the exceptions or the declaration of full compliance.

Consequently, the main part of the empirical work of this study is based on objective data and generates, therefore, reproducible results independent of the observer (researcher) so that a high degree of objectivity of the study's results is assumed. These data are considered as highly comparable so that it can be assumed that the result of the statistical analysis is highly reliable, because the data collection is not influenced by research biases. Only the primary data collection is subject to some subjectivity effects. The data for the qualitative part of this study are collected by questionnaire-based interviews with board members to obtain data on the quality of board activities, procedures and required competence. The questionnaire includes questions with and without set answers. The items of the set answers are generated through a pretest with 10 supervisory board members not included in the survey sample. However, this part of the empirical study may be considered researcher-biased.

3.4.1. Selecting, Collecting and Preparing Corporate Governance Variables

This research examines in its quantitative part corporate governance characteristics of 2010 and the performance of the included firms in the following five years. The reason for this research design and the resulting data collection approach is explained in the following paragraphs while the list of all variables, their collection, and calculation details are contained in the table in Annex VI.

Generally, two different approaches are possible: the panel data approach or the cross-sectional approach in the case of this study. Generally, it must be stated that the panel analysis is perceived to be superior to a cross-section approach in economic research.[332] Panel data analysis can be described as repeated cross-sectional studies.[333] Therefore, the panel data analysis can be defined as analysis of several series of cross-sectional data so that also the

[332] Erdogan, S. (2016). The Effect of Capital Structure on Profitability: An Empirical Analysis. In U. Akkucuk (ed.), *Research for Developing Sustainable Value in Economics, Finance, and Marketing* (pp. 307-323). Boston: Cengage Business Science, p. 316

[333] Frees, E. W. (2004). *Longitudinal and Panel Data: Analysis and Applications for the Social Sciences.* Cambridge: Cambridge University Press, p. 7

time dimension is included.[334] According to Frees (2004), the panel data approach can be seen as more valid due to a higher number of observations particularly in the search for causality[335] reducing multicollinearity problems.[336]. But, "*although more information is obtained by repeated sampling, researchers need to be cautious in assessing the amount of additional information gained*".[337] This is particularly important if independent variables must precede the dependent variable in time[338] to avoid a time-selection bias, which must be seen as an essential problem of almost all recent studies based on the panel data analysis. Wintoki et al. (2012) have criticized such an approach because the simple panel (repeated cross-sectional) study analyzing performance parameters and governance characteristics of the same year does not provide valid evidence concerning causal effects, due to the time lag between governance characteristics and their effect on performance parameters.[339]

To avoid such a time selection bias, it would be necessary to base the data analysis on time-shifted periods so that the governance data of 2010 are tested with the performance data of 2011 to cope with causal inference problems in the form of a so-called two-period adjustment strategy to avoid selection bias.[340] However, in this context, another problem would appear in the case of this research design. As mentioned, the German corporate governance regime exists in the current form since 2010. Thus, the beginning period for the cross-sectional data regarding governance characteristics would be 2010, the beginning period for performance parameters would be 2011. The data collection started in 2015 leading to the problem of

---

[334] Erdogan, S. (2016). The Effect of Capital Structure on Profitability: An Empirical Analysis. In U. Akkucuk (ed.), *Research for Developing Sustainable Value in Economics, Finance, and Marketing* (pp. 307-323). Boston: Cengage Business Science, p. 316

[335] Frees, E. W. (2004). *Longitudinal and Panel Data: Analysis and Applications for the Social Sciences*. Cambridge: Cambridge University Press, p. 10.

[336] Erdogan, S. (2016). The Effect of Capital Structure on Profitability: An Empirical Analysis. In U. Akkucuk (ed.), *Research for Developing Sustainable Value in Economics, Finance, and Marketing* (pp. 307-323). Boston: Cengage Business Science, p. 316

[337] Frees, E. W. (2004). *Longitudinal and Panel Data: Analysis and Applications for the Social Sciences*. Cambridge: Cambridge University Press, p. 10.

[338] Frees, E. W. (2004). *Longitudinal and Panel Data: Analysis and Applications for the Social Sciences*. Cambridge: Cambridge University Press, p. 11.

[339] Wintoki, M. B., Linck, J., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, 105, 581–606.

[340] Morgan, S. L., & Winship, C. (2015). *Counterfactuals and Causal Inference: Methods and Principles for Social Research*. Cambridge: Cambridge University Press, pp. 354, 364; Semykina, A., & Wooldridge, J. M. (2013). Estimation of dynamic panel data models with sample selection. *Journal of Applied Econometrics*, 28(1), 47-61.

missing data because companies have a different pace in preparing and publishing annual reports. This could have meant that governance data could have been collected for only three years. In the context of the two-period adjustment research strategy, the observation period would have been reduced to three years. However, the minimum requirement for a valid panel analysis is that the number of the sets of observations must be greater than the number of regressors (corporate governance characteristics). In the case of this research, this would have meant to dispose of only three sets of observations for each of the total number of 128 companies while the number of regressors is 19 (see Appendix II). In the framework of a panel analysis, a small number of sets of observations due to a small observation period questions the validity of the data analysis independent from the sample size.[341] Some researchers even believe that the requirement for a valid panel study is the existence of time series for at least thirty years.[342] In the case of this study's research design, the extension of the time period was not possible because the first version of the German Corporate Governance Code was introduced in 2002; however, the current version was introduced 2009/2010.

These issues have led to the decision not to choose a panel approach. This study's research design uses cross-sectional corporate governance data for years 2010 and 2014 and panel data in terms of performance growth rates for this period. Therefore, this research design can be labeled as heterogeneous research design.[343] However, the panel data in this research are accumulated data. All performance measures included are measured as growth rates over a 5-year period. In this sense, the governance characteristics are measured as predictors of performance. Accordingly, this research is based on cross-sectional data collection concerning the governance characteristics and a time-series approach concerning performance parameters following recent studies on the German Corporate Governance discussed in Section 2.3.[344]

The cross-sectional approach observes many subjects such as firms at the same point of time without regarding differences in time. Stiglbauer (2010), also examining the German

[341] Baum, C. F. (2006). *Modern Econometrics Using Stata*. College Station: Stata Press, pp. 219-220.

[342] Frees, E. W. (2004). *Longitudinal and Panel Data: Analysis and Applications for the Social Sciences*. Cambridge: Cambridge University Press, p. 7.

[343] Frees, E. W. (2004). *Longitudinal and Panel Data: Analysis and Applications for the Social Sciences*. Cambridge: Cambridge University Press, p. 8.

[344] Stiglbauer, M. (2010). *Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt*. Wiesbaden: Springer Gabler; Mustaghni, B. (2012). *Einfluss von Corporate Governance auf den Erfolg von Unternehmen: eine Untersuchung börsennotierter Unternehmen in Deutschland* (Europäische Hochschulschriften). Bern: Lang.

corporate governance system and its relationship with firm performance, argues that the cross-sectional approach concerning the governance characteristics is legitimate, due to the fact that governance policy changes are rather rare in short observation periods.[345] The research of Werder and Talaulicar (2006) as well as Mustaghni (2010) supports the approach recommended by Stiglbauer (2010).[346] Black et al. (2006) has labeled the consistency of governance policy over time as "sticky governance".[347] The recent study of Ertuna and Ertuna (2016) also indicates that companies hardly change their governance policies in the short term. [348] However, if one chooses this approach, Hsaio (2003) recommends to examine if the time homogeneity assumption can be supported, i.e., if individual values remain constant over time.[349] This study follows Stiglbauer's approach and collects the data on the governance characteristics not only for 2010 but also for 2014 to implement Hsaio's recommendation. The corporate governance data are collected from the corporate compliance declarations for each company for 2010 and 2014. The descriptive statistics comparing the governance characteristics of 2010 and 2014 in Section 4.1 shows stable values for supervisory board size, executive board size and for most of all other selected variables, characterizing corporate governance in both years representing the beginning year and the ending year of the observation period. To quantify the time homogeneity of governance characteristics between 2010 and 2014, a paired samples T-test is conducted and documented in Annex X. The results show no significant differences of corporate governance characteristics. Every pair shows a $p > 0.05$ except the pair for the supervisory board compensation which have changed significantly between 2010 and 2014, as it is discussed in the descriptive statistics of the total sample in Section 4.1. According to the t-table, with $df > 126$, the t-value should not be

[345] Stiglbauer, M. (2010*). Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt*. Wiesbaden: Springer Gabler, pp. 127-128.

[346] Werder, A., & Talaulicar, T. (2006). Kodex Report 2006: Die Akzeptanz der Empfehlungen und Anregungen des Deutschen Corporate Governance Kodex. *Der Betrieb*, 59(6). 849-855; Mustaghni, B. (2012). *Einfluss von Corporate Governance auf den Erfolg von Unternehmen: eine Untersuchung börsennotierter Unternehmen in Deutschland* (Europäische Hochschulschriften). Bern: Lang, p. 112; Stiglbauer, M. (2010*). Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt*. Wiesbaden: Springer Gabler, pp. 127-128.

[347] Black, B., Jang, H., & Kim, W. (2006). Predicting firms' corporate governance choices: Evidence from Korea. *Journal of Corporate Finance*, 12(3), 660-691, p. 660.

[348] Ertuna, Ö., & Ertuna, B. (2016). Evolution of Corporate Governance and Potential Contribution of Developing Countries. In G. Aras & D. Crowther (eds.), *Global Perspectives on Corporate Governance and CSR* (pp. 163-186). Milton Park: Routledge, p. 177

[349] Hsiao, C. (2003). *Analysis of Panel Data. Cambridge*. Cambridge University Press, p. 318.

greater than the critical value of $t > 1.960$ at a significance level of $p < 0.05$ (2-tailed).[350] None of the pair's t-values are greater than the critical t-value except the supervisory board compensation pair (see Annex X). Consequently, it should be assumed that the time homogeneity assumption can be confirmed for this sample.

The question remains as to what corporate governance data provided by the compliance declarations should be included in the data analysis. The German Corporate Governance Code comprehends 62 sections. Only a certain number of sections are selected, which are to be seen as essential parts of good corporate governance, based on the factors derived from the empirical research discussed in Chapter 2. For these sections, the exceptions were counted as a whole and with the focus on essential sub-clauses. Thus, for example, the number of exceptions for § 5 are counted in total as the variable 'Exceptions to § 5", indicating differences to the division of labor recommended by the German Corporate Governance Code, while, for example, the exception to § 5.4.6 indicates that supervisory board compensation is not performance-related.

In all, the following sections are selected to operationalize the factors developed in the 13-factors research model:

(1) **Overall Compliance with Corporate Governance Rules**: § 161 of the German Stock Corporate Act (AktG) determines that management and supervisory boards of listed companies must issue an annual statement concerning the compliance of the company with the German Corporate Governance Code (DCGK). The compliance declaration must contain explicitly the number and reasons for the exceptions. The number of exceptions can be obtained from the compliance declaration which is either provided in the annual report or published on the investor relation website.

(2) **Risk Responsibility**: § 3 of the German Corporate Governance Code (DCGK) regulates the cooperation between the executive management and supervisory board. However, 99% of the counted exceptions of this sample refer only to § 3.8. This section rules the own-risk deductible included in the directors' and officers' liability insurance (D&O insurance). The DCGK (2015) requires:

> *"If the company buys a D&O insurance for the board, a deductible of at least 10% of the damage must be agreed up to at least a half times the fixed annual*

[350] Quirk. T. J. (2015). *Business Statistics*. Cham: Springer, p. 257.

> *remuneration of the board member. In a D & O insurance for the supervisory board, a similar deductible must be agreed upon*."

The ruling idea behind this regulation is to increase board member liability so that board members are, on the one hand, more risk averse and, on the other hand, exercise more caution in their supervisory activities.

(3) **Division of Supervisory Board 'Labor'**: § 5 of the German Corporate Governance Code (DCGK) regulates the duties, responsibilities, the formation of committees, the composition of the supervisory board, and its compensation. § 5.3.2 determines that an audit committee must be established:

> "*The supervisory board shall set up an audit committee, which shall be concerned – as far as no other committee is empowered and – in particular with monitoring the accounting process, the effectiveness of the internal control system, the risk management system and the internal audit system, the audit, in particular the independence of the auditor, the assignment of the audit to the auditor, the determination of auditing focal points and the fee agreement and compliance. The chairman of the audit committee shall have specialist knowledge and experience in the application of accounting principles and internal control procedures. He should be independent and not a former board member of the company whose appointment ended less than two years*."

Accordingly, two main exceptions from the German Corporate Governance Code (DCGK) lead to a count of an exception regarding 5.3.2: No audit committee was installed or the chairman was not independent.

§ 5.3.3 of the German Corporate Governance Code (DCGK) determines that the supervisory board shall install a nomination committee composed exclusively of shareholder representatives. The nomination committee shall propose suitable supervisory board candidates to the annual general meeting for the election of supervisory board members. Thus, § 5.3.3 is an essential part in the supervisory board member recruiting process and the maintenance of monitoring quality. The assumption is that a standardized and regular process leads to a higher probability that supervisory board members are selected on objective reasons.

(4) **Supervisory Board Independence:** § 5.4.2 of the German Corporate Governance Code (DCGK, 2015) rules that the supervisory board should include an adequate number of independent members:

> "*A supervisory board member is in particular not to be considered to be independent in the sense of this recommendation if he has a personal or*

> *business relationship with the company, their organs, a controlling shareholder or is connected which establishes a significant and non-temporary conflict of interest*."

Thus, exceptions to this paragraph signal conflicts of interest, which might interfere with the exercise of supervisory duties.

(5) **Performance-based Compensation:** § 5.4.6, section 2 of the German Corporate Governance Code (DCGK, 2015) determines that the

> "*members of the supervisory board shall receive a compensation that is commensurate to their duties and the company's position. If the supervisory board members are promised performance-related compensation, it should be geared towards sustainable corporate development*"

Thus, an exception to this rule shows that the supervisory board compensation is not linked to corporate performance.

The data for all these variables are collected from the compliance declarations as dichotomous variable coded as 0 = no or 1 = yes—e.g., existence of strategy committee, risk liability, coupling of compensation to firm performance—or as metric variable such as, for example, in the case of the total number of exceptions or the number of board members with supervisory mandates in other companies. Other governance factors such as the total amount of board compensation, meeting frequencies, etc. are drawn from the 2010 annual reports.

3.4.2. Selecting, Collecting and Preparing Financial Data

For each of the 128 companies of the sample, the financial data are collected from Thomson One or Morningstar Direct. The data concerning the 5-year total shareholder return growth and the 5-year revenue growth are available from the Morningstar Direct Database while the return on invested capital (ROIC) and the financial leverage data are available from the Thomson One Database.

The growth rates provided by Morningstar are calculated by the database provider as average annual growth rate (AAGR). According to Morningstar (2015), the 5-year total shareholder return (TSR) includes both income in the form of dividends or interest payments and capital gains or losses resulting from the increasing or decreasing value of the security. [351] Both variables are calculated as AAGR = (Growth Rate in Period 2009/2010 + Growth Rate in

[351] Morningstar (2016). *Data Definitions*. Chicago: Morningstar, p. 25.

Period 2010/2011 + Growth Rate in Period 2011/2012 + Growth Rate in Period 2012/2013 + Growth Rate in Period 2013/2014) / 5 (Number of Periods).[352]

The question as to which is the most reliable growth rate is often discussed. At least, three main options exist: (1) the average annual growth rate (AAGR), (2) the compounded average growth rate (CAGR), and (3) the median growth rate (MGR). The AAGR—as it is applied, for example, by Morningstar Direct—may be seen as the most widely used. Thus, for example, macroeconomic research prefers the AAGR as well.

In the field of corporate governance research, recent studies use mainly the AAGR such as, for example, Omran (2009), Hamelin (2013), and Boreiko and Murgia (2016).[353] A few other studies in this field, such as Balsmeier and Czarnitzki (2012), use the median growth rate (MGR) in addition to the main performance measures on firm level calculated as AAGR.[354] However, the medium growth rate is only applied to calculate the industry growth rate for company growth rates calculation as below or above industry growth. Accordingly, Balsmeier and Czarnitzki (2012) prefer to calculate growth rates as AAGR; however, in the case of cross-sectional approach. For example, in the case of an industry, this is the median growth rate of all growth rates of all companies for a given period to determine the relative growth of companies over a period with the industry or market growth rate. Similarly, for example, also Ali and Gregoriou (2006) have used the AAGR as a performance indicator; however, they have used the median growth rate as reference for the industry comparison in examining growth differences between "poor corporate governance firms" and their respective industry group.[355]

The CAGR calculates a smoothed average of growth over a period. It ignores outliers (volatility) but implies that the growth during that time is steady. CAGR is defined as CAGR = (Ending Value/Beginning Value)(1/Number of Years)—1 and is appropriate only in the

[352] Own presentation based on Morningstar (2016). *Data Definitions*. Chicago: Morningstar, pp. 25, 30.

[353] Omran, M. (2009). Post-privatization corporate governance and firm performance: The role of private ownership concentration, identity and board composition. *Journal of Comparative Economics*, 37(4), 658-673; Hamelin, A. (2013). Influence of family ownership on small business growth. Evidence from French SMEs. *Small Business Economics*, 41(3), 563–579; Boreiko, D., & Murgia, M. (2016). Corporate Governance and Restructuring Through Spin-Offs: European Evidence. In T. Azarmi & W. Amann (eds.), *The Financial Crisis: Implications for Research and Teaching* (pp. 7-47). Dordrecht: Springer.

[354] Balsmeier, B., & Czarnitzki, D. (2012). *Ownership concentration, institutional development and firm performance in Central and Eastern Europe*. Mannheim: Centre for European Economic Research (ZEW).

[355] Ali, P., & Gregoriou, G. N. (2011). *International Corporate Governance After Sarbanes-Oxley*. New York: Wiley, pp. 154-158.

case of continuous growth such as in the case of interest rates.[356] In using the CAGR, invalid results may occur in the financial analysis of companies when the beginning value is negative, which could be the case, for example, in calculating a company's net income growth. However, in the cases of this study, the growth indicators cannot become negative. No case is possible in which the revenue or the total shareholder return can be negative at the beginning of a period. The second problem of the CAGR, discussed also in macroeconomic research, is that the CAGR does not take into account intermediate values within the observation period. Therefore, such institutions as the OECD or the World Bank prefer generally the AAGR, particularly in calculation growth rates, especially in short observation periods,[357] particularly because the CAGR is extremely sensitive to beginning values and ending values selected.[358] Consequently, the World Bank, for example, applies the CAGR calculation only in cases of missing intermediate values in the observation period, respectively, in the case that longer time series are available.[359]

In essence, the AAGR seems to be more appropriate in the case of this study with its short observation period of five years but with complete revenue time series for each company. Therefore, the 5-year AAGR is used as provided by Morningstar Direct Database. Other financial data were used only as 5-year average. The 5-year average for the variables return on invested capital (ROIC) and financial leverage are provided by Thomson One Database. Here, the decision to use the arithmetic average for the 5-year period is based on three considerations. (1) The ROIC may theoretically fluctuate widely. However, this is not the case in practice.[360] In fact, the ROIC is even preferred in the financial analysis due to its time stability and its insensitivity towards one-time effects and accounting policy. [361] The same goes also for financial leverage. Thus, for example, Graham et al. (2016) have found that the leverage of US corporations has increased over the 20th century; the average leverage remains

[356] Renshaw, G., & Ireland, N. J. (2012). *Mathematics for Economics* (4th ed.). Oxford: Oxford University Press, pp. 381-382.

[357] OECD (2008). *Glossary of Statistical Terms*. Paris: OECD, pp. 227, 594; World Bank (2008). *World Development Indicators*. Washington: World Bank, p. 390-391.

[358] Mawson, P. (2002). *Measuring Economic Growth* (New Zealand Treasury Working Paper 2/14). Wellington: New Zealand Treasury, p. 23.

[359] World Bank (2008). *World Development Indicators*. Washington: World Bank, pp. 390-391.

[360] Massari, M., Gianfrate, G., & Zanetti, L. (2016). *Corporate Valuation: Measuring the Value of Companies in Turbulent Times*. Hoboken: Wiley, p. 201.

[361] Massari, M., Gianfrate, G., & Zanetti, L. (2016). *Corporate Valuation: Measuring the Value of Companies in Turbulent Times*. Hoboken: Wiley, p. 201.

relatively stable in the short-term.[362] Therefore, also the average leverage is used in this study as provided by Thomson One to consolidate one-time outlier effects.

3.5. Applied Data Analysis Methods and Research Procedure

The following tests are conducted in this study:

(1) Testing the Statistical Influence of Board Characteristics on Firm Performance: The collected data includes only two scale levels. The financial data are completely numerically scaled, while the corporate governance characteristics are dichotomously and numerically scaled. Therefore, the main data analysis applies Pearson's R as a correlation coefficient to analyze bivariate correlations or cumulative influences of corporate governance characteristics on firm performance characteristics through the application of the multiple regression analysis.

(2) Testing the Differences between Groups: Additionally, not only bivariate correlations among the total sample are analyzed but also among different groups. The sample is clustered into two different groups. One group, which is named TSR top-30 group (TSR outperformers), includes the top-30 companies with the highest total shareholder return among the total sample, while the second group, which is named TSR bottom-30 group (TSR underperformers), includes the 30 companies with the lowest total shareholder return in a 5-year period among the total sample. Both groups are compared by applying a t-test, to determine the significance of group differences, while among both groups the same tests are performed as with the total sample regarding bivariate correlations.

As it is apparent in Section 3.4, two types of variables are available: (1) interval-scaled variables such as revenue growth, total shareholder return growth or number of committees and others, or (2) dichotomous variables such as exception to § 5, the existence of a strategy committee and others. To examine the relationship between two variables such as, for example, in the case of P1 or P2, the bivariate correlation must be calculated (see Table 3). Due to the fact that all performance indicators are interval-scaled, while corporate governance

[362] Graham, J. R., Leary, M. T., & Roberts, M. R. (2016). *A century of capital structure: The leveraging of corporate America*. *Journal of Financial Economics*, 118(3), 658–683.

variables are interval scaled as well as nominal-scaled in a dichotomous form (yes/no as 1/0) the calculation of Pearson's r as correlation measure is required.[363]

The main data analysis methods are bivariate correlation and multiple regression analysis (including ANOVA) and tests for statistical differences (t-test), the latter in particular to find differences between groups clustered by their 5-year total shareholder return growth resulting in a TSR top-30 group and TSR bottom-30 group. Eight propositions are tested as summarized in Table 3. The research propositions P1 to P7 (see Table 3) are examined using the bivariate analysis. P8 applies the multiple regression analysis to examine the cumulative effect of all corporate governance variables on firm performance (see Table 3).

The multiple regression analysis is performed for the total sample with the total shareholder return as the dependent variable to examine the influence of all corporate governance variables. The analysis is conducted stepwise with the inclusion of the control variables firm size (measured as annual revenue), 5-year ROIC and 5-year revenue growth, because it must be assumed that the total shareholder return defined as security price growth and dividend payouts for a given period should be influenced much more by financial data.

In the case of testing the research propositions concerning the TSR groups, t-tests are performed to examine the corporate governance differences between the TSR top-30 companies and the 30 worst performing companies of the sample. Consequently, this study does not examine only differences in a mixed sample, including both underperforming and outperforming companies, but also examines homogeneous subsamples (TSR-outperformer and TSR-underperformer), so that the possibility increases that not only weak correlations can be identified, but also some stronger relationships between individual variables among groups with similar performance.

All tests are performed with SPSS (Statistical Package for the Social Sciences). Further details concerning the variables, their calculation, sources, indications, and other details are listed in Annex VI. Other data analysis methods such as the factor analysis are not conducted, which is primarily explained by the hypotheses asking for association between variables and the scale level of the included variables. A further possible approach could have been the interdependence analysis. However, both main approaches of the interdependence analysis are not appropriate. The factor analysis requires exclusively interval scaled data, while the cluster

[363] Myers, J. L., Well, A. D., & Lorch, R. F. (2010). Research Design and Statistical Analysis (3rd ed.). New York: Routledge, pp. 483-489.

analysis is an explorative approach, which is not the approach of this research. Further details on the specific performance of individual tests are provided in the following chapter describing and discussing the different analyses and their results.

Table 3. Research Propositions and Variables of the Quantitative Analysis

Research Proposition	Variables
P1a: Companies with a higher degree of good corporate governance have a better firm performance.	IV: Number of Exceptions to § 161 DV: Revenue Growth, TSR Growth Total Sample
P1b: TSR-Outperformers have a higher degree of good corporate governance than TSR-underperformers.	IV: Number of Exceptions to § 161 DV: Revenue Growth, TSR Growth TSR groups
P2a: Companies with independent board members show a better firm performance.	IV: Exceptions to 5.4.2 (yes/no) DV: Revenue Growth, TSR Growth Total Sample
P2b: The group of TSR-outperformers has more likely an independent board than TSR-underperformers.	IV: Exceptions to 5.4.2 (yes/no) DV: Revenue Growth, TSR Growth TSR groups
P3a: Companies with a strategy committee show a better performance	IV: Strategy Committee (yes/no) DV: Revenue Growth, TSR Growth Total Sample
P3b: The group of TSR-outperformers has more likely strategic committee than TSR-underperformers.	IV: Strategy Committee (yes/no) DV: Revenue Growth, TSR Growth TSR groups
P4a: Companies, in which the supervisory board compensations are coupled with firm performance, perform better.	IV: Performance-based Compensation (yes/no) DV: Revenue Growth, TSR Growth Total Sample
P4b: The group of TSR-outperformers shows a higher degree of performance-based compensation, than TSR-underperformers.	IV: Performance-based Compensation (yes/no) DV: Revenue Growth, TSR Growth TSR groups
P5a: Companies with larger boards perform better.	IV: Board Size DV: Revenue Growth, TSR Growth Total Sample
P5b: TSR-Outperformers have more supervisory board members than TSR-underperformers.	IV: Board Size DV: Revenue Growth, TSR Growth TSR groups
P6a: The larger the number of committees, the higher is the firm performance.	IV: Number of Committees DV: Revenue Growth, TSR Growth TSR groups
P6b: TSR-Outperformers show a higher degree of supervisory board division of labor than TSR-underperformers.	IV: Number of Committees DV: Revenue Growth, TSR Growth TSR groups
P7: The higher the 'Good Governance' degree, the higher is the management efficiency (ROIC).	IV: Number of Exceptions to § 161 DV: 5-Years ROIC Average Total Sample
P8: The complete set of good corporate governance factors explains firm performance to a high degree	IV: Total Set of Explanatory Variables DV: TSR Growth Total Sample

Source: Author's presentation.
Note: IV = Independent Variable; DV = Dependent Variable

As mentioned, the questionnaire contains questions with set answers and without set answers. The items of the questions with set answers were collected by a pretest to reduce the number of all possible items. The questionnaire-based survey was analyzed using descriptive statistics in the case of questions with set answers. Statements generated through questions without set

answers were selected by the researcher to provide additional findings or to support findings of the quantitative analysis. Further details are documented in Section 4.3.

3.6. Summary of Research Design and Methods

Concerning the data collection, data aggregation, and data analysis, the following essentials should be repeated:

(1) The basis for this research is a 13-factor model. Eleven factors are operationalized in the quantitative research; two factors are operationalized in the qualitative research. Concerning the 11 quantitative factors, it must be mentioned that 10 of these 11 factors are operationalized as a single variable, while the factor code compliance is operationalized by including six variables.

(2) The base year is 2010. Growth rates and averages are calculated as 5-year average of the year-over-year growth (AAGR), such as revenue growth and total shareholder return growth. The ROIC is calculated as a 5-year average.

(3) The corporate governance measures are collected as cross-sectional data for 2010. The approach is justified in-depth in Section 3.4.1 as scientifically more valid than panel research.

(4) The governance control variable firm size (revenue) was also collected from 2010 as the base year for the governance data, due to firm size effects measured in prior research. The revenue for 2014 was used only in the descriptive statistics to qualify the sample's representativeness.

(5) The research propositions P1 to P7 were analyzed based on testing correlations among the total sample and by tests for differences in the TSR. The evaluation of research proposition P8 requires a regression model for all compliance variables. Consequently, this research is based on descriptive statistics, bivariate analysis, and multiple regression analysis (including ANOVA).

Annex VI provides a synopsis on all variables, their sources, the reasons for selection and assumptions concerning their effects on performance variables.

4. ANALYSIS OF THE IMPACT OF CORPORATE GOVERNANCE CHARACTERISTICS ON FIRM PERFORMANCE AND SHAREHOLDER RETURN

The following sections present and discuss the findings of the quantitative data analysis and the qualitative, questionare-based research. The presentation and discussion of the quantitative data analysis follows the order of the research propositions presented in Table 3. The survey results are presented in the order of the questions in the questionnaire. Both sections begin with the descriptive statistics.

4.1. Descriptive Statistics of the Total Sample and the Total Shareholder Return Groups

4.1.1. Financial Characteristics of the Total Sample and the Total Shareholder Return Groups

4.1.1.1. Total Sample Financials

The sample includes all German companies listed in the DAX30, MDAX, SDAX, and TecDAX minus the companies for which corporate governance data were not available as was explained in the data collection section of this study above. The 128 companies among this sample have generated total revenues of EUR 1,507,013m in 2014 respectively 1,507bn (see Figure 3).

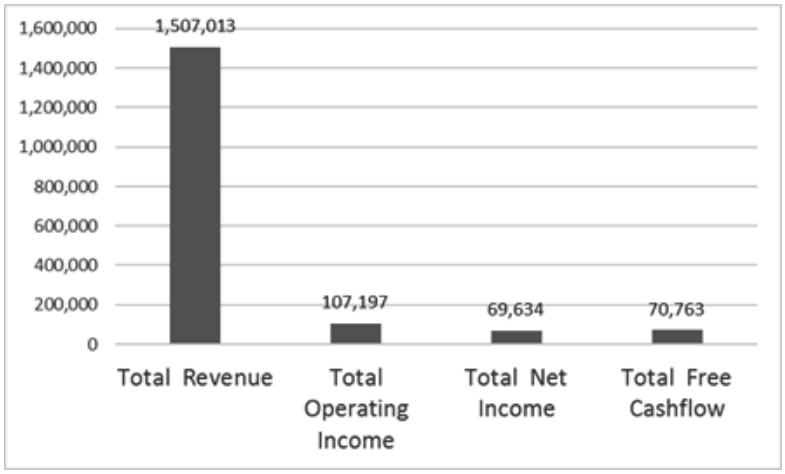


Figure 3. Total Revenue, Operating Income, Net Income and Free Cash Flow of the Total Sample (n =128), in EUR m; 2014)

Source: Author's calculations and presentation based on data from ThomsonOne.

The total sample's operating income is 107,197m, whereas the total sample's net income amounts to 69,634m, which is almost equal to the total sample's free cash flow. To provide a comparison, the largest global company by revenue is currently Royal Dutch Shell with revenues of EUR 356,142m (2014). Thus, the sample's total revenue is almost four times larger than the revenue of the largest global company. However, the average sample company has generated EUR 11,774m in revenue, with an operating income of 837m and an average net income of EUR 544m (see Figure 4). Consequently, the sample's average net margin is 7%, which is slightly below the S&P 500 net margin of currently 8.25%.[364] Therefore, it can be stated that the sample is, at least in terms of net margin, representative for the stock listed companies in developed economies.

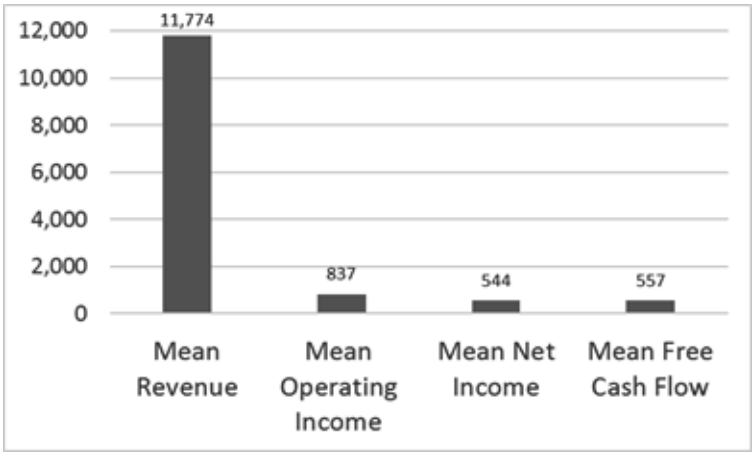


Figure 4. Mean Values of the Total Sample's Revenue, Operating Income, Net Income and Free Cash Flow Total Sample (n = 128; in EUR m; 2014)

Source: Author's calculations and presentation based on data from ThomsonOne.

The same can be noticed regarding profitability, financial risk, and shareholder return. This becomes, for example, evident in considering the financial risk, expressed by the financial leverage. Financial leverage is calculated as total assets divided by total shareholders' equity. The interpretation is: the higher the ratio, the more debt a company uses in its capital structure. The S&P 500 financial leverage, which is the average financial leverage of all S&P 500 companies, is currently 3.99,[365] while the financial leverage of the research sample amounts to 3.95 and the average ROIC amounts to 10.60 % (see Table 4).

[364] CISMarket (2015). *S&P 500 Financial Strength Information*. Retrieved from http://csimarket.com/Industry/industry_Financial_Strength_Ratios.php?&hist=1

[365] CISMarket (2015). *S&P 500 Financial Strength Information*. Retrieved from http://csimarket.com/Industry/industry_Financial_Strength_Ratios.php?&hist=1

Table 4. Key Ratios and Total Assets (Total Sample: n = 128; 2010-2014)

Ratios/Indicators	Mean	Median
5-Years Average ROIC (%)	10.60	9.976
5-Years Average Financ. Lev.	3.95	2.84

Source: Author's calculations and presentation based on data from ThomsonOne. Abbreviations: See the List of Abbreviations.

To sum up, this sample is, particularly in comparison with international key figures, a representative sample. However, it must be mentioned that the sample is dominated by comparabley smaller companies due to the fact that already two indices are small companies' indices, namely the SDAX and TecDAX. The TecDAX is not defined by a market cap threshold but by segment definition. Since Germany is not a country of larger tech companies, this sample is dominated by significantly smaller firms than the US tech segment listed in the NASDAQ index. This leads to a slight dominance of small firms, which becomes visible in examining the quartiles in terms of revenue (see Table 5).

Table 5. Quartile Values of the Total Sample Revenue (n = 128; in EUR m; (2014))

Min	Q_1	Median	Q_3	Max	IQR	Upper Outliers	Lower Outliers
52	577.75	1,765.50	14,534	202,458	13,956.2	13	0

Source: Author's calculations and presentation based on data from ThomsonOne. Abbreviations: See the List of Abbreviations.

The sample's revenue median is EUR 1,765m (2014), so that 50% of the companies generate lesser than EUR 1,765m. Instead, the top quartile includes companies from EUR 14,534m up to EUR 202,445m; 109 companies generate lesser than 20% of the revenue of the top company, which is the Volkswagen AG with EUR 202,458m (2014). However, from the shareholder's view, the sample is very profitable with total sample's 5-year total shareholder return (TSR) average of 21.8%. Furthermore, the sample's companies are managed highly profitable. With the average 5-year average ROIC of 10.60% (see Table 4), the companies of this sample are slightly less profitable compared to the S&P 500 with an a ROIC of 11.2% (2014).[366] Thus, it can be said that the sample is slightly dominated by smaller companies, which however, are managed with high profitability and have generated a TSR, which is significantly higher than the risk-free rate, measured by long-term government bonds such as Germany 10-Year Yield Bond, which provides currently a yield of 0.69%.[367] Furthermore, the

[366] J. P. Morgan (2014). Creating Value through Best-In-Class Capital Allocation. New York: J. P. Morgan., p. 1.

[367] Bloomberg (2015). *German Government Bonds*. Retrieved from http://www.bloomberg.com/markets/rates-bonds/government-bonds/germany.

sample shows a significantly higher year-over-year growth rate in 2014 than the S&P 500. Whereas this sample's year-over-year revenue growth average is 10.3%, the S&P 500's is 12.83%.[368] Consequently, this sample resembles strongly the S&P 500 concerning several performance parameters

4.1.1.2. Financials of Total Shareholder Return Groups

As mentioned, the same tests, which are conducted with the total sample, are conducted with outperformers–underperformers groups among the total sample, which is called the TSR-30:30-subsample. The TSR-30:30-subsample consists of the top-30 companies and the bottom-30 companies in terms of the total shareholder return (TSR). Thus, the TSR 30:30 subsample consists of, from the shareholder's viewpoint, the most profitable and the companies with the lowest profitability. The TSR-top-30 companies show the highest degree of serving the shareholder's interest, labeled as TSR-outperformers and, vice versa, the TSR-bottom-30 companies are labeled as TSR-underperformers (see Figure 5).

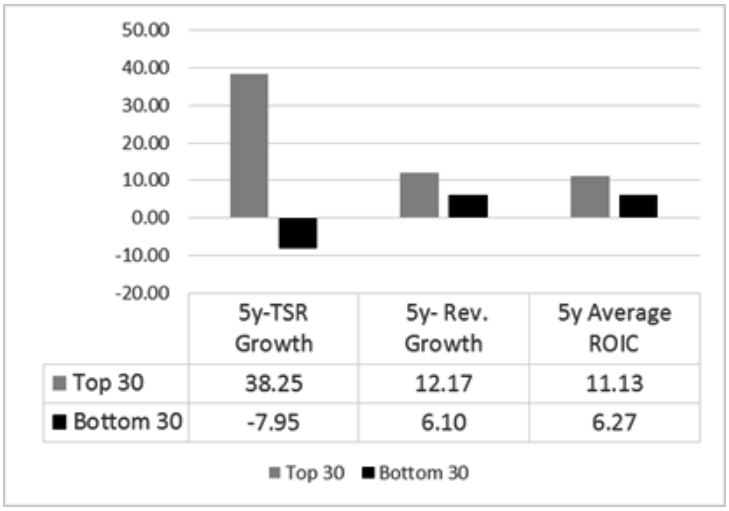


Figure 5. Firm Performance Indicators among TSR Top-30 Group and the TSR Bottom-30 Group (group-n = 30, in %; 2010-2014)

Source: Author's calculations and presentation based on data from ThomsonOne. Abbreviations: See the List of Abbreviations.

The main sample's difference in terms of TSR growth is obvious, while the differences in revenue growth and profitability are not as large. These observations can be explained by a closer look to the distribution of companies in terms of index membership. Here, the

[368] CISMarket (2015). *S&P 500 Financial Strength Information*. Retrieved from http://csimarket.com/Industry/industry_Financial_Strength_Ratios.php?&hist=1.

distribution indicates larger overhang of small companies in the TSR top-30 group (see Figure 6).

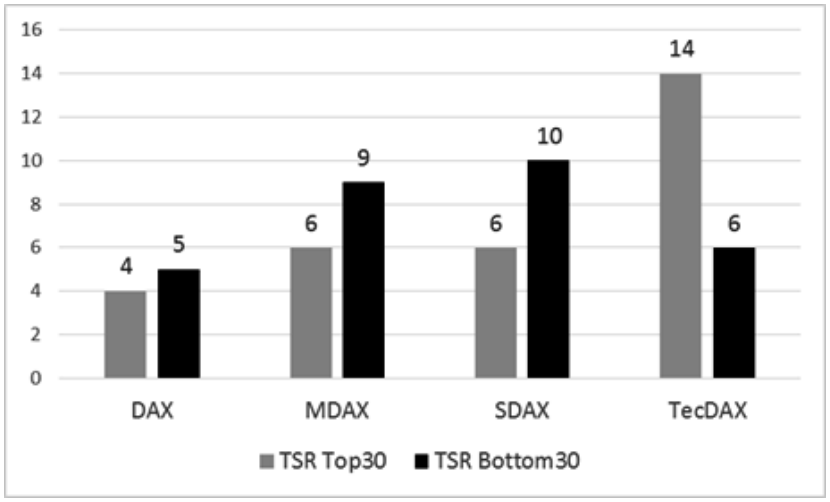


Figure 6. Number of Companies in the TSR Top-30 Group and the TSR Bottom-30 Group (group-n = 30; 2010-2014)

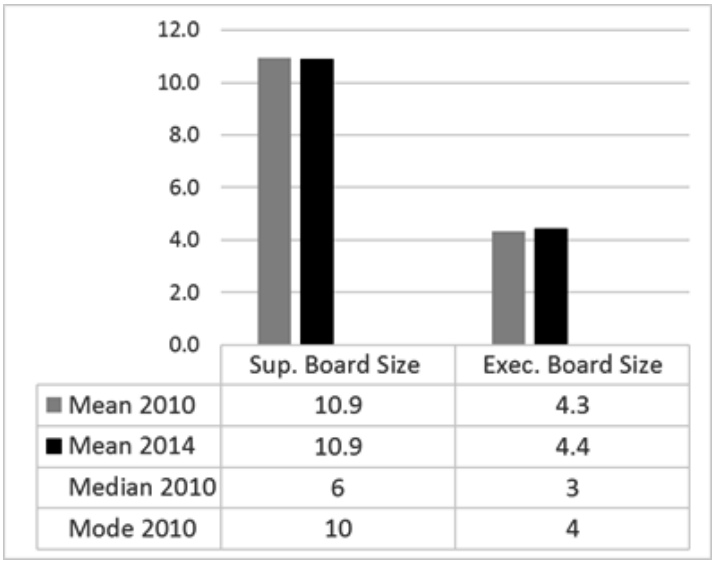
Source: Author's calculations and presentation based on data from ThomsonOne. Abbreviations: See the List of Abbreviations.

The number of companies from the SDAX and TecDax accounts for 20 cases of the total of 30 cases in the TSR top-30 group, while the TSR bottom-30 group is dominated by the middle segment with 19 companies from the MDAX and SDAX. However, the distribution of blue chip companies is almost equal with 4 respectively 5 cases. In accordance with these differences, in terms of index membership, the revenue mean for the TSR top-30 group is EUR 5.8bn (2014) lower than that of the TSR bottom-30 group with a revenue of EUR 12bn (2014). However, assuming with this index membership distribution that the differences in terms of number of committees and the number of DCGK exceptions, the board size, etc. results more likely from the different size of the companies in both groups, which becomes apparent in the group statistic, which is discussed in the tests above. However, it is first noted that the TSR top-30 companies' supervisory board has, on the average, three members less than the TSR bottom-30 companies' supervisory board. Accordingly, the chance is higher that TSR top-30 companies have fewer committees and show a higher number of exemptions regarding the DCGK § 5. Accordingly, the TSR top-30 group shows a lower mean regarding the number of committees (2.4 vs. 3.5) and a higher mean regarding the number of DCGK § 5 exceptions (2.9 vs. 2.2) and, furthermore, regarding the total number of § 161 exceptions (6.2. vs. 4.4), see Table 8. To sum up, within the TSR top-30 group some variables may be more determined by firm size than by firm growth.

4.1.2. Supervisory Board Characteristics of the Total Sample

In Germany, supervisory board members usually receive compensation for their work. The amount is established in the annual general meeting. The compensation is usually composed of a fixed basic compensation and a variable bonus, which is calculated based on the number of board meetings. Consequently, there is no essential difference in the remunaration scheme of CEOs and supervisory board members. In Germany most listed companies publish the annual individual supervisory board members' payments in their annual report.

The average size of the supervisory boards and the average size of the executive board of the total sample remains absolutely constant over the period 2010–2014 (see Figure 7).

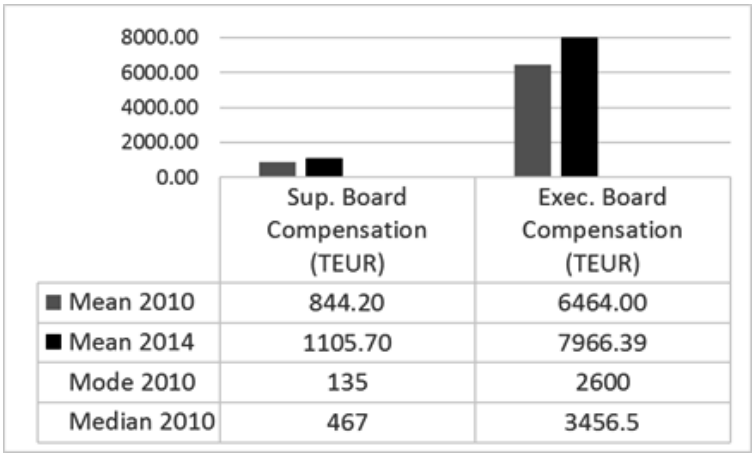


	Sup. Board Size	Exec. Board Size
Mean 2010	10.9	4.3
Mean 2014	10.9	4.4
Median 2010	6	3
Mode 2010	10	4

Figure 7. Supervisory Board Size, Number of Members of the Total Sample (n= 128; 2010 & 2014)

Source: Author's calculations and presentation based on data from annual reports (see also Annex VIII). *Abbreviations: See the List of Abbreviations.*

Yet the average compensation of supervisory board members and executive board members increased considerably during this time period. For the average supervisory board in the total sample, the compensation increased by EUR 260,000, while the total compensation for the average executive board increased by EUR 1.502m" (see Figure 8).

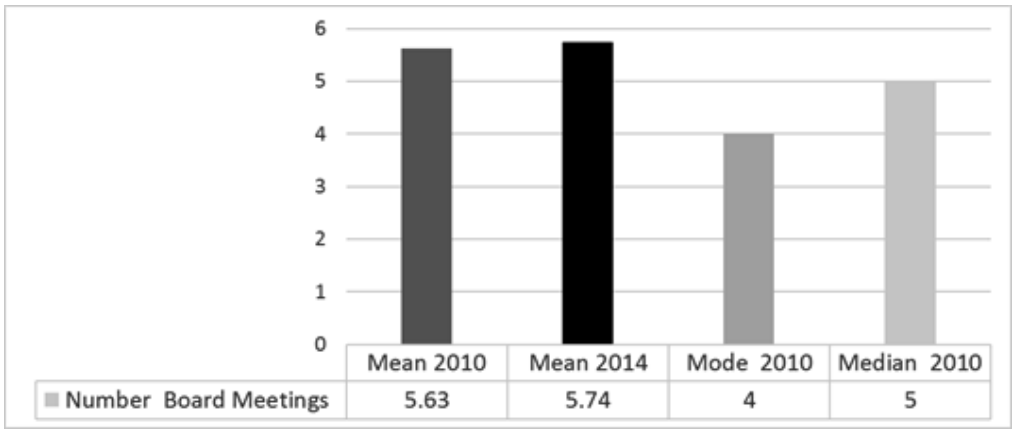


	Sup. Board Compensation (TEUR)	Exec. Board Compensation (TEUR)
Mean 2010	844.20	6464.00
Mean 2014	1105.70	7966.39
Mode 2010	135	2600
Median 2010	467	3456.5

Figure 8. Supervisory Board and Executive Board Compensation of the Total Sample (2010, 2014)

Source: Author's calculations and presentation based on data from annual reports (see also Annex VIII). Abbreviations: See the List of Abbreviations.

Since the supervisory board compensation is linked to the number of sessions, the number of supervisory board sessions is also interesting. Yet, the number of supervisory board meetings indicates not a significant increase in the observation time period (see Figure 9).



	Mean 2010	Mean 2014	Mode 2010	Median 2010
Number Board Meetings	5.63	5.74	4	5

Figure 9. Average Number of Board Meetings (2010, 2014) (Total Sample)

Source: Author's calculations and presentation based on data from annual reports.

In this respect, it can be assumed that, in principle, the compensation increase reflects the increased control effort less. Rather, it may be assumed that the supervisory board compensation increase is more aligned with the increase of the executive board compensation, which is in the most cases linked to company performance. However, the growth rates of both shows that the supervisory board compensation increase exceeds the executive board compensation growth rate. While the executive board compensation increases by 23%, the average supervisory board compensation increases by 31% (see Table 6).

Table 6. 5-Years Increase of Compensations in the Total Sample (Index (2010) = 100)

Value; Year	Sup. Board Compensation (TEUR)	Exec. Board Compensation (TEUR)
Mean 2010	100.00	100.00
Mean 2014	130.70	122.68

Source: Author's calculations and presentation based on data from annual reports. Abbreviations: See the List of Abbreviations.

The correlation between supervisory board compensation growth and the executive board compensation growth of the total sample is, as expected, low ($r = 0.27$; $p = 0.07$), so that it can be stated that the supervisory board compensation increase has decoupled from the executive board compensation increase. This result is even more remarkable because the executive board compensation is tied to the company's financial performance by variable compensation share, so that the executive board compensation may be considered as a benchmark for a performance-based compensation. Yet, the supervisory board compensation exceeds the executive board compensation by more than 10 percentage points. Therefore, it could be concluded that the development of supervisory board compensation has been decoupled from the actual firm performance in the observation period. It would be, however, conceivable that this development could be explained by an increase in the number of supervisory board members. Yet the average supervisory board size remains absolutely equal in this sample over the observation period (see Figure 7). Another reason for this excessive growth of supervisory board compensation might arise from the fact that the average number of committees may have increased so that higher attendance fees were incurred. However, here, also, the number of supervisory board committees has not changed over the observation period (see Figure 10).

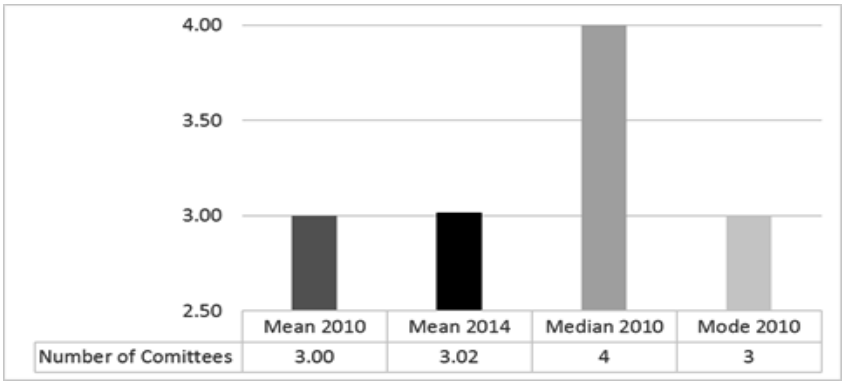


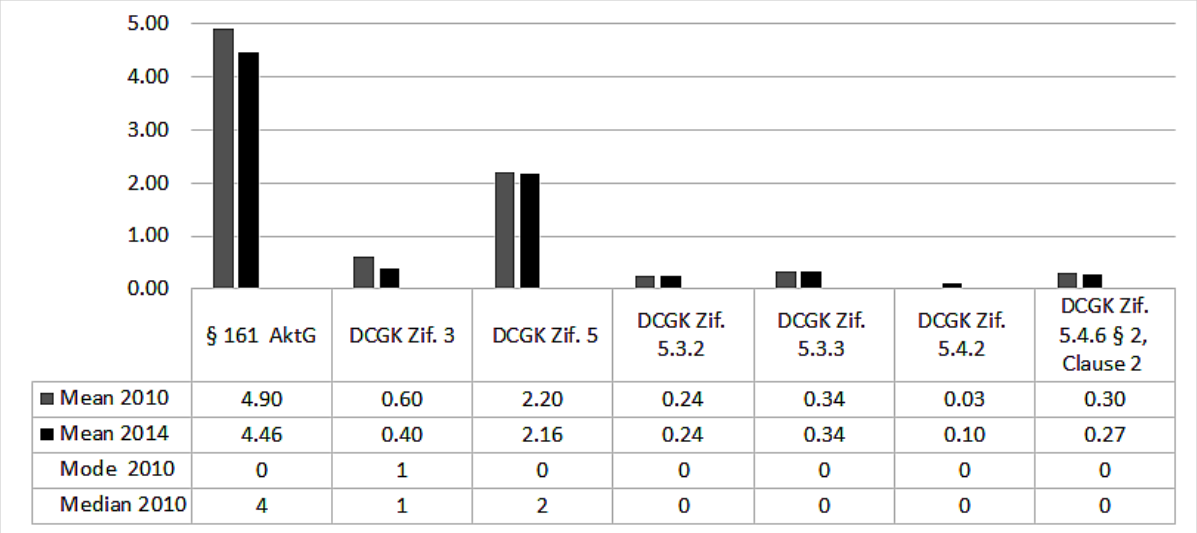
Figure 10. Average Number of Committees (2010, 2014) (Total Sample)

Source: Author's calculations and presentation based on data from annual reports (see also Annex VIII).

Therefore, it can be concluded that, at least based on the present data, no reason can be found to explain such an excessive increase of supervisory board compensation.

4.1.3. Governance Characteristics of the Total Sample and the Total Shareholder Return Groups

If one reviews the changes in the exceptions to the mentioned rules, it is obvious that the total number of exceptions have not changed significantly (see Figure 11).



	§ 161 AktG	DCGK Zif. 3	DCGK Zif. 5	DCGK Zif. 5.3.2	DCGK Zif. 5.3.3	DCGK Zif. 5.4.2	DCGK Zif. 5.4.6 § 2, Clause 2
Mean 2010	4.90	0.60	2.20	0.24	0.34	0.03	0.30
Mean 2014	4.46	0.40	2.16	0.24	0.34	0.10	0.27
Mode 2010	0	1	0	0	0	0	0
Median 2010	4	1	2	0	0	0	0

Figure 11. Exceptions from the German Governance Model among the Total Sample (2010, 2014)

Source: Author's calculations and presentation based on data from annual reports (see also Annex VIII). Explanations of of Board Characteristics: See Section 3.4.1.

The most significant changes are measured in three different areas. The number of exceptions concerning the D&O own-risk deductible ("# Excep. DCGK § 3") decreased by 33%, while the number of exceptions concerning the link between corporate performance and supervisory compensation ("# Excep. DCGK § 5.4.6 Sec. 2") decreased by 10%. Instead, the number of exceptions concerning the independence of supervisory members ("# Excep. DCGK § 5.4.2") increased by 223%; however, beginning from a low base level.

Thus, it can be determined that the sample's companies increased the subsequent risk for supervisory activities and tie the supervisory compensation more closely to firm performance. Instead, the board structure characteristics regarding the committees and the overall structure of cooperation between executive board and supervisory board, the independence of members, etc. remained more or less on the same level. Therefore, it can be stated that the

regulatory intentions concerning responsibility increase and regular supervisory board procedures and the allocation of positions are increasingly met.

However, the excessive growth of the supervisory board compensation in the total sample in relation to executive board compensations is slightly contrary to this finding. It has been already stated above that supervisory board compensation increased significantly stronger than management compensation. That fact could not be explained by the increase in the number of sessions and thus higher attendance fees or with the increase in the size of the supervisory boards. Therefore, a comparison of companies with and without exceptions to § 5.4.6 (coupling of supervisory board compensation and firm performance) may provide additional indications. Therefore, two subsamples were formed to compare group differences in the growth of supervisory compensation. One group consists of all companies that have not established performance-dependent supervisory board compensation neither in 2010 nor in 2014 and vice versa. The group of companies with a coupling of supervisory board compensation to firm performance includes 70 companies, which is 55% of the total sample. However, it can be stated that the excessive supervisory board compensation growth cannot be explained by performance-dependent compensation likewise. The difference between both groups in terms of the 5-year growth (in % per year) is extremely low with only 0.5 percentage points (see Figure 12).

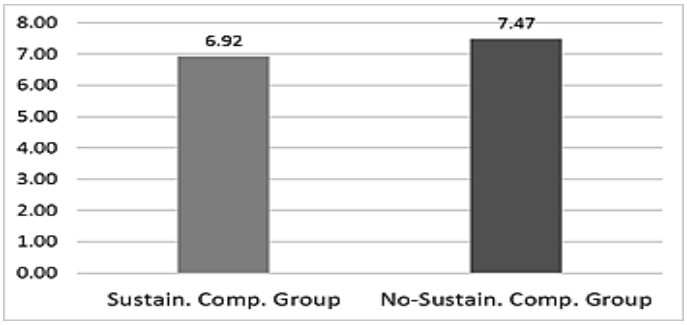


Figure 12. 5-Years Supervisory Board Compensation Growth grouped by Compensation Scheme, in % per year (2010 to 2014)

Source: Author's calculations and presentation based on data from annual reports (see also Annex VIII). Note: "Sustain. Com. Group" includes all companies with performance-based compensation scheme, "No-Sustain. Comp. Group" includes all companies without a performance-based compensation scheme. See Annex VIII for further statistics such as mode and median values.

Thus, it can finally be concluded that the coupling of supervisory board compensation to firm performance does not explain the excessive growth of supervisory board compensation in comparison with executive board compensation. And, , it may be questioned, whether the §

5.4.6 rule, which requires a link between firm performance and supervisory board compensation, is really effective in that the compliance with this rule leads to the desired results. Accordingly, it is assumed that in the following tests, evidence can be provided that the supervisory board incentives to improve firm performance are without influence. Yet, in 'defense' of supervisory boards, it must be mentioned that, on the one hand, a relatively strong correlation exists between firm size and board size (r = 0.478; p = 0.00), and on the other hand, between the number of committees and supervisory board compensation (r = 0.528; p = 0.00) (see Table 7).

Table 7. Correlations between Firm Size, Number of Committees and Supervisory Board Compensation (Total Sample)

		Revenue 2010 EUR.Mil	Sup. Board Size
5-y Rev. Growth	Pearson Correlation	-,176*	-,329**
	Sig. (2-tailed)	.047	.000
	N	128	128
Sup. Board Size	Pearson Correlation	,478**	1
	Sig. (2-tailed)	.000	
	N	128	128

		Sup. Board Compensation
Number Committees	Pearson Correlation	,528**
	Sig. (2-tailed)	.000
	N	128

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne (see also Annex VIII). Abbreviations: See the List of Abbreviations.

From both results, it can be concluded that the larger the company in terms of revenue, the higher is the supervisory board size, and that the higher the number of committees, the higher is the supervisory board compensation, whereas both correlations are highly significant at the 0.01 significance level (see Table 7). On the other hand, revenue growth is slightly negative correlated with firm size in terms of revenue with r = -0.176 (p = 0.047) (see Table 7). Thus, it can be assumed that, at a certain level, the monitoring complexity rises immensely without an influence on firm performance, so that the supervisory costs in larger firms may be higher without more influence on firm performance. However, this explanation needs further testing, so that the complete explanation of this issue is provided in the conclusion section of this chapter.

Besides this view on the total sample and its good corporate governance characteristics, the TSR groups also should be discussed. The group statistics of the TSR groups indicates that the TSR top-30 companies have smaller supervisory boards, fewer committees and smaller executive boards, pay smaller supervisory board and executive board compensations, but

comply lesser with the DGCK ("Number of Excep. § 161"), etc. than the TSR bottom-30 companies (see Table 8).

Table 8. Descriptive Statistics of the Total Shareholder Return Groups

		N	Mean	Std. Deviation	Std. Error Mean
5y-TSR Growth	Top 30	30	38.2	15.2	2.8
	Bottom 30	30	-8.0	8.1	1.5
5y- Rev. Growth	Top 30	30	12.2	19.3	3.5
	Bottom 30	30	6.1	9.1	1.7
Sup. Board Size	Top 30	30	9.2	5.4	1.0
	Bottom 30	30	12.3	6.4	1.2
Exec. Board Size	Top 30	30	3.7	1.8	0.3
	Bottom 30	30	4.5	1.5	0.3
Sup. Board Comp. TEUR	Top 30	30	519.5	611.7	111.7
	Bottom 30	30	1085.1	1161.3	212.0
Exec. Board Comp. TEUR	Top 30	30	3448.8	4040.4	737.7
	Bottom 30	30	6890.6	5436.7	992.6
Number Board Meetings	Top 30	30	5.4	2.3	0.4
	Bottom 30	30	5.5	2.0	0.4
Number Comittees	Top 30	30	2.4	2.0	0.4
	Bottom 30	30	3.5	1.5	0.3
Number Sub. Board Members with oth. Mandates	Top 30	30	5.0	4.6	0.8
	Bottom 30	30	7.4	6.1	1.1
Number Excep. § 161 AktG	Top 30	30	6.2	3.5	0.6
	Bottom 30	30	4.4	4.1	0.7
Number Excep. DCGK § 3	Top 30	30	0.8	0.9	0.2
	Bottom 30	30	0.5	0.7	0.1
Number Excep. DCGK § 5	Top 30	30	2.9	2.1	0.4
	Bottom 30	30	2.2	2.5	0.5
5y Average ROIC	Top 30	30	11.1	8.5	1.6
	Bottom 30	30	6.3	8.1	1.5
Rev. Share Mgment Costs.	Top 30	29	0.007	0.008	0.0
	Bottom 30	30	0.004	0.005	0.0
5y Average Financ. Lev.	Top 30	30	3.3	1.7	0.3
	Bottom 30	30	3.2	1.9	0.3
Revenue 2010 EUR Mil	Top 30	30	5792.2	13220.4	2413.7
	Bottom 30	30	11963.8	24371.4	4449.6

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Note: See Annex VIII for further statistics such as mode and median values. Abbreviations: See the List of Abbreviations.

However, here again, firm size effects become much more visible as in the total sample. While the TSR top-30 group shows a 5-year TSR growth of 38% against -8% among the TSR

bottom-30 group, the mean revenue is 5,792m (median = EUR 860.5m; see Annex IX), while the average TSR bottom-30 company revenue accounts to EUR 11,963m (see Table 8) (median = EUR 1,491m; see Annex IX). Instead, the TSR top-30 group shows a double 5-year revenue growth (see Table 8).

This shows again that in the following tests, firm size must be introduced as a control variable. However, also some other group differences are interesting concerning some side aspects in the framework of the shareholder interests. Thus, for example in the case of the TSR top-30 group, the 5-year TSR growth is strongly and significantly correlated with the 5-year revenue growth, but not with the 5-year ROIC average (see Table 9), which becomes more obvious in the comparison of outperformers–underperformers groups than in the total sample. Therefore, it can be concluded that shareholders strongly refer to revenue growth but not to the company's profitability. To mention it again: The TSR measures both dividends paid and profits from stock price changes, so that a rising TSR also signals a rising valuation of the company by the financial market. Instead, the TSR underperformers group (TSR bottom-30) shows no correlations in this context, which can be explained by the fact that the mean revenue growth was only around half as large of the TSR outperformers group (see Table 9), so that the preferences of the financial market focused on the outperforming group, which is reflected in the TSR growth.

Table 9. Correlations Regarding Firm Performance in the Total Shareholder Return Groups

Correlations TSR Top-30		5y- Rev. Growth	5y Average ROIC	Rev. Share Mgment Costs	5y Average Financ. Lev.	Revenue 2010 EUR Mil
5y-TSR Growth	Pearson Correlation	,639**	-.005	.191	.020	-.230
	Sig. (2-tailed)	.000	.979	.320	.918	.221
	N	30	30	29	30	30

Correlations TSR Bottom-30		5y- Rev. Growth	5y Average ROIC	Rev. Share Mgment Costs	5y Average Financ. Lev.	Revenue 2010 EUR Mil
5y-TSR Growth	Pearson Correlation	.035	.124	-,484**	-.060	-.075
	Sig. (2-tailed)	.855	.514	.007	.753	.693
	N	30	30	30	30	30

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Furthermore, it can be noted that the difference between both groups in terms of the share of management costs to revenue ("Exec. Com./Rev Ratio" in Table 8) is relatively moderate. While the share of management costs in the TSR top-30 group is 0.007% of revenue, the share of management costs in the TSR bottom-30 group accounts for 0.004% (see Table 8). Again, it must be questioned whether management incentives are really effective in particular against the background of the correlations in both samples. The comparison of the TSR groups shows no correlation between management compensation/revenue ratio and shareholder return (TSR) growth in the case of the TSR top-30 group as well as a relatively strong negative and significant correlation in the case of the underperforming TSR bottom-30 group (see Table 9).

4.2. Quantitative Analysis of Corporate Governance and Firm Performance and Shareholder Return

4.2.1. Relationships between Performance Parameters and Governance Characteristics

The correlation matrix shows some moderate, but significant correlations. The highest correlation exists between supervisory board size and the number of committees is high with r = 0.693 (p = 0.000) and significant (see Table 10).

Table 10. Correlation between Supervisory Board Size and Number of Committees (Total Sample)

		Number Committees
Sup. Board Size	Pearson Correlation	,693**
	Sig. (2-tailed)	.000
	N	128

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

The second-highest and highly significant correlation exists between revenue growth and the number of committees. However, this correlation is also negative, which means that *the larger the number of committees, the lower is the revenue growth, as well as the total shareholder return and the profitability (ROIC), whereas the correlation with the total shareholder return and profitability is very low and not significant* (see Table 11).

Table 11. Bivariate Correlation Matrix (Total Sample)

		5-y TSR Growth	5-y Rev. Growth	ROIC 5y-Average	Rev. Share Mgment Costs	Financ. Lev. 5y-Average
5-y TSR Growth	Pearson Correlation	1	.160	.165	.034	.010
	Sig. (2-tailed)		.071	.063	.703	.909
	N	128	128	128	127	128
5-y Rev. Growth	Pearson Correlation	.160	1	-.021	.112	-.112
	Sig. (2-tailed)	.071		.812	.209	.209
	N	128	128	128	127	128
Sup. Board Size	Pearson Correlation	-.085	-,329**	-.072	-,399**	,197*
	Sig. (2-tailed)	.339	.000	.419	.000	.026
	N	128	128	128	127	128
Exec. Board Size	Pearson Correlation	-.107	-,334**	-.088	-,294**	,224*
	Sig. (2-tailed)	.230	.000	.323	.001	.011
	N	128	128	128	127	128
Sup. Board Compensation	Pearson Correlation	-.111	-,278**	-.025	-,344**	.146
	Sig. (2-tailed)	.212	.001	.778	.000	.100
	N	128	128	128	127	128
Exec. Board Compensation	Pearson Correlation	-.091	-,271**	-.030	-,279**	,182*
	Sig. (2-tailed)	.307	.002	.736	.001	.039
	N	128	128	128	127	128
Number Sup.Board Meetings	Pearson Correlation	-.071	-.030	.150	.017	.027
	Sig. (2-tailed)	.429	.738	.091	.853	.764
	N	128	128	128	127	128
Number Sup. Board Memb. with PhD	Pearson Correlation	-.125	-,241**	-,200*	-,296**	.075
	Sig. (2-tailed)	.161	.006	.023	.001	.398
	N	128	128	128	127	128
Number Committees	Pearson Correlation	-,185*	-,384**	-.143	-,335**	,191*
	Sig. (2-tailed)	.037	.000	.107	.000	.031
	N	128	128	128	127	128
Number Sup. Board Members with oth. Mandates	Pearson Correlation	-.144	-,258**	-,219*	-,281**	,244**
	Sig. (2-tailed)	.106	.003	.013	.001	.005
	N	128	128	128	127	128
Number Excep. § 161 AktG	Pearson Correlation	.035	,334**	.068	,186*	-.049
	Sig. (2-tailed)	.695	.000	.446	.036	.583
	N	128	128	128	127	128
Number Excep. DCGK § 5	Pearson Correlation	.072	,248**	.055	,208*	-.102
	Sig. (2-tailed)	.421	.005	.538	.019	.254
	N	128	128	128	127	128
Number Excep. DCGK § 3	Pearson Correlation	-.029	.108	.063	.119	.017
	Sig. (2-tailed)	.744	.226	.483	.184	.846
	N	128	128	128	127	128
ROIC 5y-Average	Pearson Correlation	.165	-.021	1	.036	.057
	Sig. (2-tailed)	.063	.812		.685	.524
	N	128	128	128	127	128
Rev. Share Mgment Costs	Pearson Correlation	.034	.112	.036	1	-.084
	Sig. (2-tailed)	.703	.209	.685		.347
	N	127	127	127	127	127
Financ. Lev. 5y-Average	Pearson Correlation	.010	-.112	.057	-.084	1
	Sig. (2-tailed)	.909	.209	.524	.347	
	N	128	128	128	127	128

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

This result may indicate that the increase of coordination and communication efforts does not lead to better firm performance. However, to confirm this thesis, further tests were necessary, following at a later stage of this study.

In this context, also the third-highest correlation is also of interest. The share of management costs to revenue is also negatively and significantly correlated with the supervisory board compensation, which means that the higher the supervisory board compensation, the lower is the share of management costs to revenue (see Table 11). However, it must be stated that here the firm size may be an interfering variable due to the fact that the firms with higher total revenues tend to have a larger supervisory board, which results in higher supervisory costs alone due to the higher number of supervisory board members.

However, some non-existing correlations are also interesting. Thus, for example, the correlations between the share of management costs to performance measures are weak. There is no correlation with total shareholder return growth, revenue growth, and the firm's profitability (ROIC) (see Table 11). Yet, it must be mentioned that these results show a low significance. However, this can be interpreted as a confirmation of a *non-existing correlation between firm performance variables and management compensation: The correlations are extremely low, and the null hypotheses cannot be rejected.* Here, it must be discussed later to which degree a management incentivisation is really efficient.

To sum up, the test of bivariate correlations among the total sample indicates that individual corporate governance variables do not significantly influence firm performance indicators. Yet, some indicators show moderate and significant influence such as supervisory board size, compensations, the number of committees, and the number of exceptions, etc. on revenue growth, while the total shareholder return remains completely unaffected by corporate governance factors (see Table 11). However, the following tests refer not only to the total sample but also to the subsamples according to firm performance indicators. The assumption is that—if one avoids the problem of samples mixing good and bad firms—it is possible to find more evidence in comparing both groups. Accordingly, not only correlations are tested but differences between both groups of outperforming and underperforming companies regarding their differences in the corporate governance context.

4.2.2. Relationship between Total Code Compliance and Firm Performance

4.2.2.1. Impact of Code Compliance on Revenue Growth (Total Sample)

Research proposition P1a assumes a correlation between a higher degree of good corporate governance on firm performance. Therefore, the number of exceptions to the German Corporate Governance Code were counted and analyzed regarding correlations with firm performance indicators such as revenue growth, total shareholder return growth, the 5-year ROIC average, and the 5-year financial leverage average as an indicator for risk taking.

The bivariate test of all numerical variables indicates that the correlation between compliance with the German Corporate Governance Code and firm performance indicators varies from moderate to weak among the total sample (see Table 12).

Table 12. Correlations between Code Compliance and Firm Performance Indicators (Total Sample)

		5-y TSR Growth	5-y Rev. Growth	ROIC 5y-Average	Rev. Share Mgment Costs	Financ. Lev. 5y-Average
Number Excep. § 161 AktG	Pearson Correlation	.035	,334**	.068	,186*	-.049
	Sig. (2-tailed)	.695	.000	.446	.036	.583
	N	128	128	128	127	128

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Only the correlation between revenue growth and good corporate governance ("Number Excep. § 161 AktG") is moderately strong but highly significant with r = 0.334 (p = 0.000). However, this result indicates that *companies with more exceptions respectively a lower good corporate governance degree show a moderately higher revenue growth*, because a higher number of exceptions signals a lesser compliance with the German Corporate Governance Code (DCGK). All other dependent variables, such as the total shareholder return growth, the average ROIC, and the financial leverage show no correlations. Furthermore, the German Corporate Governance Code compliance degree does not influence the risk behavior indicated by the financial leverage. Therefore, it must be stated that research proposition P1a must be rejected. A higher compliance with the German Corporate Governance Code does not influence firm performance. However, it must be stressed that a moderate relationship between revenue growth and a lower good corporate governance degree does not establish a

causal relationship, for example, in the sense that a lower degree of compliance with the German Corporate Governance Code leads to higher revenue growth because a correlation indicates only a relationship but not a causal connection.

4.2.2.2. Correlations between Code Compliance and Revenue/Shareholder Return Growth (Total Shareholder Return Groups)

Research proposition P1b assumes that TSR outperformers show a higher degree of good corporate governance in terms of lower number of exceptions to DCGK than underperformers. The group statistics shows that the means are slightly different regarding the DCGK exceptions (§ 161). In the case of the TSR top-30 group, the mean number of exceptions is 6.1, while the mean number in the case of the TSR bottom-30 is 4.4 (see Table 13). Accordingly, it can be stated that the TSR top-30 group shows slightly more exceptions to the DCGK as a benchmark for 'good corporate governance" that the TSR bottom-30 group.

Table 13. Differences Concerning Total Code Compliance between the Total Shareholder Return Groups

Group Statistics

		N	Mean	Std. Deviation	Std. Error Mean
Number of Excep. § 161 AktG	Top 30	30	6.167	3.5241	.6434
	Bottom 30	30	4.433	4.0995	.7485

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Interval of the Lower	Interval of the Upper
Number of Excep. § 161 AktG	Equal variances assumed	.545	.463	1.756	58	.084	1.7333	.9870	-.2424	3.7090
	Equal variances not assumed			1.756	56.722	.084	1.7333	.9870	-.2433	3.7100

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne .Note: See Annex VIII for further statistics such as mode and median values. Abbreviations: See the List of Abbreviations.

Regarding the group difference, the two-tailed significance is p = 0.08, so that the variance in both groups is not really high but the null hypothesis must be rejected. However, the question occurs due to the results of the descriptive statistics of the total shareholder return groups concerning intervening variables. Here, it was determined that both groups show a high difference regarding firm size.

Therefore, the correlations are calculated for both groups, with the result that the number of exceptions to good corporate governance is at best explained by firm size in terms of revenue (2010). The TSR top-30 group shows the highest correlation with firm size in terms of revenue, while the firm performances variables show lower values (see Table 14). The TSR top-30 group's correlations between revenue growth and good corporate governance is higher than the correlations between good corporate governance and TSR growth, revenue growth, and ROIC (see Table 14).

Table 14. TSR Top-30 Group and TSR Bottom-30 Group Correlations between Firm Size, Firm Performance, and Code Compliance

Correrlations TSR Top-30		5y-TSR Growth	5y- Rev. Growth	5y Average ROIC	Rev. Share Mgment Costs	5y Average Financ. Lev.	Revenue 2010 EUR Mil
Number of Excep. § 161 AktG	Pearson Correlation	.291	,459*	-.120	.283	-,426*	-,463*
	Sig. (2-tailed)	.119	.011	.529	.137	.019	.010
	N	30	30	30	29	30	30

Correlations TSR Bottom-30		5y-TSR Growth	5y- Rev. Growth	5y Average ROIC	Rev. Share Mgment Costs	5y Average Financ. Lev.	Revenue 2010 EUR Mil
Number of Excep. § 161 AktG	Pearson Correlation	.318	,382*	.279	-.045	-.287	-.333
	Sig. (2-tailed)	.087	.037	.135	.813	.124	.072
	N	30	30	30	30	30	30

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

If one interprets the TSR top-30 result, it must be stated that the higher the number of exceptions, the lower is the firm size in terms of revenue. In other words, smaller firms show a higher number of exceptions and thus a lower German Corporate Governance compliance, which is true for both groups. Therefore, the research proposition P1b must be rejected as well as research proposition P1a. It must be concluded that good corporate governance in terms of compliance with the DCGK cannot be explained by firm performance regarding different performance dimensions such as shareholder return, firm profitability, and market success in terms of revenue growth. Instead, it must be noticed that firm size is an intervening variable, as it was assumed already in the descriptive analysis.

4.2.3. Board Independence and Firm Performance

Research proposition P2 assumes that companies with an independent board show better firm performance. Due to the fact that no information exists on the independence of each single supervisory board member, exceptions to DGCK § 5.4.2 are counted. DGCK § 5.4.2 determines that supervisory board members should be independent:

> "*A Supervisory Board member is not to be considered independent in particular if he/she has personal or business relations with the company, its executive bodies, a controlling shareholder or an enterprise associated with the latter which may cause a substantial and not merely temporary conflict of interests*." (DCGK, 2015, § 5.4.2)

An exception to this rule is counted as 1 = yes, while no exception is counted as 0 = no. Thus, the variable supervisory board independence is coded as a dichotomous variable and reflects the total independence of the board. Accordingly, the same bivariate correlation test can be conducted as in the case of all other metric variables because if a variable is coded as dichotomous, Pearson's r is also a reliable test as is the case for metric variables.[369]

Regarding the total sample, a slight but highly significant correlation exists only between board independence and revenue growth with r = 0.299 with p = 0.001 (see Table 15).

Table 15. Board Independence and Firm Performance Correlations (Total Sample)

		5-y TSR Growth	5-y Rev. Growth	ROIC 5y-Average	Rev. Share Mgment Costs	Financ. Lev. 5y-Average
Except. DCGK Zif. 5.4.2 (yes/no)	Pearson Correlation	.011	,299**	-.133	-.070	.011
	Sig. (2-tailed)	.905	.001	.134	.433	.898
	N	128	128	128	127	128

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

To decide whether this finding is sufficient to verify the research proposition, a t-test is conducted by grouping the companies according to their independence. Yet, this result shows that the correlation must be questioned. It is true that the companies with an independent board show significantly different values in terms of revenue growth. Yet, companies with an independent board show a lower 5-year revenue growth mean (8%) than companies with dependent boards (27%) (see Table 16). Additionally, it must be mentioned that the dependent

[369] Myers, J. L., Well, A. D., & Lorch, R. F. (2010). *Research Design and Statistical Analysis* (3rd ed.). New York: Routledge, p. 483).

board group consists of only four companies. Therefore, the result of the correlation test must be questioned so that research proposition P2a should be rejected.

Table 16. Board Independence and Firm Performance (Group Statistics Total Sample)

Except. DCGK Zif. 5.4.2 (yes/no)		N	Mean	Std. Deviation	Std. Error Mean
5-y TSR Growth	No Excep. = Independ. Sup. Board	124	14.0494	16.94524	1.52173
	Yes = Not-Independ. Sup. Board	4	27.0400	48.76227	24.38113
5-y Rev. Grwoth	No Excep. = Independ. Sup. Board	124	8.0564	8.24404	.74034
	Yes = Not-Independ. Sup. Board	4	27.8100	48.31542	24.15771
ROIC 5y-Average	No Excep. = Independ. Sup. Board	124	10.81041	8.72953	0.78394
	Yes = Not-Independ. Sup. Board	4	4.10700	9.40296	4.70148
Rev. Share Mgment Costs	No Excep. = Independ. Sup. Board	123	0.00465	0.00608	0.00055
	Yes = Not-Independ. Sup. Board	4	0.00224	0.00149	0.00075
Financ. Lev. 5y-Average	No Excep. = Independ. Sup. Board	124	3.93859	6.20492	0.55722
	Yes = Not-Independ. Sup. Board	4	4.33900	3.62785	1.81392

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Note: Allmost every company in the total sample (124 out of 128) has implemented board independence so that median and mode values are identical with the total sample's values (: See Annex VIII). Abbreviations: See the List of Abbreviations..

Regarding the TSR subsample, it must be determined that both groups include two of the four companies of the total sample with dependent supervisory boards. However, with respect to the low number of companies, the testing of P2b would not provide any reliable results. Therefore, it must be stated that research proposition P2b can neither be adopted nor rejected. However, if one includes the results of P2a testing, then it should be decided that also research proposition P2 should generally be rejected.

4.2.4. Impact of Strategy Committees on Firm Performance

Research proposition P3 assumes that companies with a strategy committee show better firm performance. Regarding the issues in testing P3 concerning the low number of cases, it can be stated that the group of companies with a strategy committee is comparably larger with 26 companies (20% of the total sample). However, the correlation between the existence of a strategy committee and each of the firm performance variables is very low and in none of these cases highly significant (see Table 17). Instead, the only relatively ($r > 0.2$; $p > 0.05$) significant correlation, which is the correlation between the existence of a strategic committee and firm profitably, is even negative.

Table 17. Correlations between Strategy Committee and Firm Performance (Total Sample)

		5-y TSR Growth	5-y Rev. Growth	ROIC 5y-Average	Rev. Share Mgment Costs	Financ. Lev. 5y-Average
Strategy Committee (yes/no)	Pearson Correlation	-.066	-.146	-,194*	-.019	.125
	Sig. (2-tailed)	.458	.100	.029	.831	.161
	N	128	128	128	127	128

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

To evaluate the result of the correlation test, the group statistics provides further indications. Regarding the profitability, it can be noticed that companies with a strategy committee do not perform better than companies without. Companies with a strategy committee show a ROIC mean value of 7%, while companies without a strategy committee show a higher profitability of 11% (see Table 18). This also applies for revenue growth and TSR growth. In both categories, companies without a strategy committee perform better than companies with a strategy committee.

Table 18. Groups Statistics Regarding Strategy Committee and Firm Performance (Total Sample)

Strategy Committee (yes/no)		N	Mean	Std. Deviation	Std. Error Mean
5-y TSR Growth	No	102	15.5368	18.98628	1.87992
	Yes	26	10.2131	15.63332	3.06595
5-y Rev. Growth	No	102	9.5214	12.27545	1.21545
	Yes	26	5.3481	7.19605	1.41126
ROIC 5y-Average	No	102	11.4566	8.8207	0.8734
	Yes	26	7.2442	7.9668	1.5624
Rev. Share Mgment Costs	No	102	0.0046	0.0061	0.0006
	Yes	25	0.0043	0.0057	0.0011
Financ. Lev. 5y-Average	No	102	3.5664	3.1274	0.3097
	Yes	26	5.4602	12.1878	2.3902

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Note: See Annex VIII for further statistics such as mode and median values. Abbreviations: See the List of Abbreviations.

Accordingly, research proposition P3a must be rejected. The group of companies with a strategy committee among the total sample does not consist of outperformers. They are, on the average, underperformers. But again, the results of the correlation tests do not imply a causal relationship.

In the case of the TSR subsample, the decision to reject or adopt the research proposition is much easier. Regarding the distribution of strategy committees, the frequencies are precisely equal. Both groups have the same number of companies that have established strategy committees (see Table 19).

Table 19. Frequencies of Companies without and with a Strategy Committee in the TSR Subsample

Top30 =1; Bottom30=2		Top 30	Bottom 30	Total
Strategy Committee (yes=1, no=0)	no	25	25	50
	yes	5	5	10
Total		30	30	60

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne.

Therefore, it can be stated that, with respect to the enormous differences between both groups concerning revenue growth, TSR growth and ROIC, the existence of a strategy committee is not relevant, because the establishment of a strategy committee does not explain whether a company is a TSR, revenue, or ROIC outperformer or underperformer.

4.2.5. Impact of Performance-Based Supervisory Board Compensation on Firm Performance

Research proposition P4 assumes a relationship between the supervisory board compensation and firm performance. It is expected that the incentivisation of the supervisory board should influence firm performance.

4.2.5.1. Relationship between Performance-Based Supervisory Boards and Performance (Total Sample)

DCGK § 5.4.6, para. 2, requires that the supervisory board compensation is linked with firm performance. DCGK § 5.4.6 requires:

> "*Members of the Supervisory Board shall receive fixed as well as performance-related compensation. Performance-related compensation should also contain components based on the long-term performance of the enterprise*." (DCGK 2015, § 5.4.6, para. 2)

Regarding the total sample, it can be stated that 70% of the companies have established a performance-based compensation system and thus comply, in this sense, with the German Corporate Governance Code (DCGK) (see Table 20).

Table 20. Number and Share of Companies Complying with § 4.6.2, para. 2 (Total Sample)

Excep. DCGK § 5.4.6 Abs. 2, (yes/no)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No - Performance-Based	90	70.3	70.3	70.3
	Yes - Not Performance-	38	29.7	29.7	100.0
	Total	128	100.0	100.0	
Total		128	100.0		

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne.

Yet, the comparison of the group of companies with a performance-based supervisory board compensation and the group without performance-based compensation indicates that the latter group shows higher mean values regarding revenue growth and TSR growth, but also a higher financial leverage (see Table 21). The group without supervisory board incentivization achieved 18.7% TSR growth and 12% revenue growth, while the group with performance incentivization achieved only 12.6%, whereas the profitability (ROIC) is equal in both groups (see Table 21). Concerning the risk behavior, it must be mentioned that companies without performance-based supervisory compensation tend to accept higher financial risks, which becomes evident in considering the mean leverage of companies not complying with DCGK § 5.4.6 Abs. 2 (see Table 21). However, this result indicates, first of all, a relatively large group difference. Obviously, the non- performance-based supervisory board compensation group achieves a higher revenue growth and TSR growth, however, based on a higher financial risk.

Table 21. Performance-Based Supervisory Board Compensation Groups and Performance (Total Sample)

Excep. DCGK § 5.4.6 Abs. 2, (yes/no)		N	Mean	Std. Deviation	Std. Error Mean
5-y TSR Growth	No Excep. - Sup. Board Comp. Incent.	90	12.660	16.955	1.787
	Yes = Excep. - Sup. Board without Incent.	38	18.708	21.146	3.430
5-y Rev. Growth	No Excep. - Sup. Board Comp. Incent.	90	7.244	7.580	0.799
	Yes = Excep. - Sup. Board without Incent.	38	12.061	17.353	2.815
ROIC 5y-Average	No Excep. - Sup. Board Comp. Incent.	90	10.661	8.862	0.934
	Yes = Excep. - Sup. Board without Incent.	38	10.458	8.733	1.417
Rev. Share Mgment Costs	No Excep. - Sup. Board Comp. Incent.	90	0.004	0.006	0.001
	Yes = Excep. - Sup. Board without Incent.	37	0.006	0.006	0.001
Financ. Lev. 5y-Average	No Excep. - Sup. Board Comp. Incent.	90	3.463	2.573	0.271
	Yes = Excep. - Sup. Board without Incent.	38	5.108	10.545	1.711

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Note: See Annex VIII for further statistics such as mode and median values. Abbreviations: See the List of Abbreviations.

Yet, this finding must be relativized because the independent sample t-test comparing both groups indicates only a significant difference regarding revenue growth (p = 0.008) and financial leverage (p = 0.007) (see Table 22).

Table 22. T-Test for Supervisory Board Compensation Groups

Independent Samples Test

		Test for		t-test for Equality of Means						
									the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
5-y TSR Growth	Equal variances assumed	.514	.475	-1.710	126	.090	-6.0480	3.5375	-13.0486	0.9526
	Equal variances not assumed			-1.564	58.036	.123	-6.0480	3.8679	-13.7904	1.6944
5-y Rev. Growth	Equal variances assumed	7.340	.008	-2.192	126	.030	-4.8169	2.1973	-9.1653	-0.4684
	Equal variances not assumed			-1.646	43.086	.107	-4.8169	2.9262	-10.7177	1.0839
ROIC 5y-Average	Equal variances assumed	.090	.765	.119	126	.905	0.2036	1.7072	-3.1748	3.5820
	Equal variances not assumed			.120	70.617	.905	0.2036	1.6970	-3.1803	3.5876
Rev. Share Mgment Costs	Equal variances assumed	.826	.365	-1.489	125	.139	-0.0017	0.0012	-0.0040	0.0006
	Equal variances not assumed			-1.440	62.608	.155	-0.0017	0.0012	-0.0041	0.0007
Financ. Lev. 5y-Average	Equal variances assumed	7.461	.007	-1.392	126	.166	-1.6455	1.1820	-3.9846	0.6936
	Equal variances not assumed			-.950	38.874	.348	-1.6455	1.7319	-5.1490	1.8580

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Note: See Annex VIII for further statistics such as mode and median values. Abbreviations: See the List of Abbreviations.

Therefore, it can be determined that only the revenue growth is distributed very differently in both groups distinguished by performance-based supervisory board compensation. Consequently, only the revenue growth is relevant in the context of research proposition P4. Yet, also the correlation between revenue growth and performance-based compensation shows only a very low correlation (r = 0.192; p = 0.03) (see Table 23)

Table 23. Correlations between Revenue Growth and Supervisory Board Compensation (Total Sample)

		5-y TSR Growth	5-y Rev. Growth	ROIC 5y-Average	Rev. Share Mgment Costs	Financ. Lev. 5y-Average
Excep. DCGK § 5.4.6 Abs. 2, (yes/no)	Pearson Correlation	.159	,192*	-.011	.132	.123
	Sig. (2-tailed)	.073	.030	.905	.139	.166
	N	128	128	128	127	128

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Note: See Annex VIII for further statistics such as mode and median values. Abbreviations: See the List of Abbreviations.

According to this result, research proposition P4a must be rejected. Performance-based supervisory board compensation has only a low and a moderately significant influence on firm performance.

4.2.5.2. Performance-Based Compensation and Total Shareholder Return

The TSR groups show a different distribution of frequencies regarding performance-based supervisory board compensation. While among the total sample, 70% of the companies have established a performance-based supervisory board compensation system (see Table 20), among the TSR top-30 group the majority of companies (60%) has not (see Table 24). Instead, the TSR bottom-30 group shows with 73% roughly the same share of companies with performance-based supervisory board compensation as the total sample (70%).

Table 24. TSR Subsample Frequencies and Correlations Regarding Supervisory Board Firm Performance Compensation

Excep. DCGK § 5.4.6 Abs. 2, (yes=1, no=0) * Top30 =1; Bottom30=2 Crosstabulation

Count		Top 30	Bottom 30	
Excep. DCGK § 5.4.6 Abs. 2, (yes=1, no=0)	no	18	22	40
	yes	12	8	20
Total		30	30	60

Symmetric Measures		Value	Approximate Significance
Nominal by Nominal	Phi	-.141	.273
	Cramer's V	.141	.273
	Contingency Coefficient	.140	.273
N of Valid Cases		60	

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Due to the fact that two nominal variables (group assignment and "Exep. DCGK § 5.4.6) are tested, Phi, Cramer's V, and Pearson's C are calculated. The resulting correlations are extremely low and not significant (see Table 24). This leads to the conclusion that performance-based supervisory board compensation does not determine group assignment (TSR top-30 group or TSR bottom-30 group). On the contrary, the TSR top-30 group shows a higher share of companies without a performance-based supervisory board compared to the total sample or the TSR bottom-30 group, so that research proposition P4b must be rejected.

4.2.6. Relationship between Board Size and Firm Performance

The research proposition P5 assumes a relationship between supervisory board size and firm performance indicators, based on the assumption that a larger supervisory board may have a higher monitoring capacity to track relevant firm performance factors.

4.2.6.1. Relationship between Board Size and Performance (Total Sample)

The bivariate testing of board size, as an independent variable with firm performance indicators among the total sample, does not support the research proposition. Only the dependent variables revenue growth and the share of management costs to revenue show a significantly moderate correlation (see Table 25).

Table 25. Correlations between Board Size and Firm Performance (Total Sample)

		TSR Growth 5y-Average	Revenue Growth CAGR	ROIC 5y-Average	Rev. Share Mgment Costs	Financ. Lev. 5y-Average
Sup. Board Size	Pearson Correlation	-.085	-,329**	-.072	-,399**	,197*
	Sig. (2-tailed)	.339	.000	.419	.000	.026
	N	128	128	128	127	128

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Here again, the relationship between a single corporate governance variable and firm performance variables is negative, which means that the larger the board, the lower is the revenue growth rate. This may be explained by the fact that the board size is more correlated with firm size, whereas larger firms do not have the same growth rates as smaller firms. This becomes apparent in testing revenue growth and the total revenue of companies in combination with the supervisory board size. The correlation matrix supports the assumption that firm size in terms of revenue is highly correlated with the supervisory board size ($r = 0.478$; $p = 0.000$) (see Table 26). Furthermore, the correlation between revenue growth and total revenue is slightly negative. This means that the higher the revenue, the lower is the revenue growth, although this correlation is weak (see Table 26).

Table 26. Correlations between Firm Size and Firm Performance (Total Sample)

		5-y Rev. Growth	Exec. Board Size	Revenue 2010 EUR Mil	Sup. Board Size
5-y Rev. Growth	Pearson Correlation	1	-,334**	-,176*	-,329**
	Sig. (2-tailed)		.000	.047	.000
	N	128	128	128	128
Exec. Board Size	Pearson Correlation	-,334**	1	,597**	,518**
	Sig. (2-tailed)	.000		.000	.000
	N	128	128	128	128
Revenue 2010 EUR Mil	Pearson Correlation	-,176*	,597**	1	,478**
	Sig. (2-tailed)	.047	.000		.000
	N	128	128	128	128
Sup. Board Size	Pearson Correlation	-,329**	,518**	,478**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	128	128	128	128

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Nevertheless, this supports the assumption that larger firms grow slower. Thus, on the one hand, research proposition P5a must be rejected: Board size and firm performance do not correlate. However, it must be mentioned that this does not indicate that board size is reducing growth, for example, due to higher coordination and controlling costs imposed by excessive monitoring and communication activities in the context of the collaboration with the executive board. Rather, the fact that a larger board is correlated with lower firm growth must be explained, at least partly, by the fact that larger firms have larger boards whereas larger firms grow slower than smaller firms. Yet, it must be stated that larger boards are not correlated with a higher total shareholder return.

4.5.6.2. Board Size Effect on Total Shareholder Return

Research proposition P5b assumes that TSR-outperformers have more supervisory board members than TSR-underperformers and thus a higher capacity to support firm performance as a result of higher monitoring capacity. Testing the group differences, it becomes apparent that the supervisory board size mean values signal a large difference between both groups. The mean supervisory board size of the TSR top-30 group shows that the average supervisory board of outperforming companies includes 9 members, while the TSR bottom-30 companies show an average board size of 12 members (see Table 27). It should also be noted that the

difference between both groups concerning this attribute is with p = 0.051 still highly significant (see Table 27).

Table 27. Differences Regarding Board Size between the TSR Groups

Group Statistics

		N	Mean	Std. Deviation	Std. Error Mean
Sup. Board Size	Top 30	30	9.233	5.4373	.9927
	Bottom 30	30	12.300	6.4228	1.1726

Independent Samples Test

		Levene's Test for Equality of		t-test for Equality of Means						
									Interval of the	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Sup. Board Size	Equal variances assumed	2.347	.131	-1.996	58	.051	-3.0667	1.5364	-6.1421	.0088
	Equal variances not assumed			-1.996	56.462	.051	-3.0667	1.5364	-6.1439	.0106

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Note: See Annex VIII for further statistics such as mode and median values. Abbreviations: See the List of Abbreviations.

However, again, the question occurs concerning the influence of firm size. It is obvious, through the comparison of correlations, that the revenue is highly and significantly correlated with the supervisory board size in both groups, while the supervisory board size shows either a correlation or a low, but not a significant, correlation (see Table 28). Thus, research proposition P5b must be rejected. Board size exerts no effect on firm performance, neither in terms of TSR growth nor in terms of revenue growth. Instead, the supervisory board size is, again, relatively high and significantly correlated with firm size.

Table 28. Correlations Regarding Supervisory Board Size and Firm Performance Indicators (Total Shareholder Groups)

TSR Top-30		5-y TSR Growth	5-y Rev. Growth	5y Average ROIC	Rev. Share Mgment Costs	5y Average Financ. Lev.	Revenue 2010 EUR Mil
Sup. Board Size	Pearson Correlation	-.195	-.312	-.026	-.260	.205	,615**
	Sig. (2-tailed)	.302	.094	.892	.173	.278	.000
	N	30	30	30	29	30	30

TSR Bottom-30		5-y TSR Growth	5-y Rev. Growth	5y Average ROIC	Exec. Comp/Rev. Ratio	5y Average Financ. Lev.	Revenue 2010 EUR Mil
Sup. Board Size	Pearson Correlation	.094	-.353	-.207	-,568**	,664**	,580**
	Sig. (2-tailed)	.623	.056	.272	.001	.000	.001
	N	30	30	30	30	30	30

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

However, the correlation between the share of management compensation to revenue and the financial leverage with board size is in the case of the TSR bottom-30 group of particular interest. In contrast to the TSR top-30 group, both independent variables show a high and significant correlation with the supervisory board size. The TSR-underperformers group shows the following correlations: (1) The larger the supervisory board, the lower is the share of management cost to revenue, and (2) the larger the supervisory board, the higher is the financial leverage. The question occurs how to interpret these correlations. If one compares both TSR groups, the financial leverage mean values are almost equal (see Table 8), whereas the t-test shows that both the TSR top-30 group and the TSR bottom-30 group are not significantly different ($p = 0.822$). Instead, also the t-test indicates that both samples are extremely similar regarding financial leverage (see Table 29).

Table 29. Group Differences Regarding Financial Leverage in the TSR Subsample

Group Statistics

		N	Mean	Std. Deviation	Std. Error Mean
5y Average Financ. Lev.	Top 30	30	3.3183	1.6671	0.3044
	Bottom 30	30	3.2147	1.8720	0.3418

Independent Samples Test

		Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
5y Average Financ. Lev.	Equal variances assumed	.220	.641	.226	58	.822	0.104	0.458
	Equal variances not assumed			.226	57.238	.822	0.104	0.458

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Note: See Annex VIII for further statistics such as mode and median values. Abbreviations: See the List of Abbreviations.

Thus, the question remains regarding which corporate governance variable correlates with financial leverage. The bivariate correlations between the financial leverage and other board attributes show high interactions between financial leverage with the number of supervisory board members with further supervisory mandates, but also again, with firm size in terms of revenue (see Table 30).

Table 30. Significant Correlations between Financial Leverage and other Variables of the TSR Bottom-30 Group

TSR Bottom-30		Sup. Board Size	Sup. Board Comp. TEUR	Exec. Board Comp. TEUR	Number of Comittees	Numb. SB-Members with oth. Mandates	5y Average ROIC	Rev. Share Mgment Costs	Revenue 2010 EUR Mil
5y Average Financ. Lev.	Pearson Correlation	,664**	,457*	,490**	,483**	,672**	-,390*	-,394*	,543**
	Sig. (2-tailed)	.000	.011	.006	.007	.000	.033	.031	.002
	N	30	30	30	30	30	30	30	30

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

The significant correlation between firm size and financial leverage (r = 0.543; p = 0.002) signals that financial leverage is mainly linked with firm size. This is also supportted by the fact that the share of management compensation to revenue with financial leverage is moderately negative and significant (r = -0.394; p = 0.31), while the correlations between financial leverage and executive board compensation (r = 0.490; p = 0.006) as well as supervisory board compensation (r = 0.457; p = 0.011) are relatively high. Both variables are also absolute numbers whereas the share of management compensation to revenue includes the factor firm size in terms of revenue.

To sum up, with the TSR group tests, the assumption is again that firm size has more explanatory power than other corporate governance variables. Yet the relevance of firm size as it is apparent in preceding and following tests must be verified in a multiple regression analysis as the last step of this statistical analysis. However, overall, the research proposition P5 should be rejected because some aspects of the results are to question and need further tests. Yet, it must be mentioned that the relationship between board size and firm performance indicators, based on the assumption that more supervisory board members may have a higher monitoring capacity to track relevant factors of firm performance, must be rejected. From this follows the thesis that board size is not an indicator for higher supervisory capacity, which can be transformed in firm performance.

4.2.7. Impact of the Number of Committees on Performance

Research proposition P6 assumes that the number of committees influences firm performance. The leading idea is that a higher division of labor due to the outsourcing of special issues into specialized committees increases the supervisory efficiency and quality and thus firm performance.

4.2.7.1. Number of Committees and Performance Effect (Total Sample)

With the r = 0.384 (p = 0.000), the correlation between the number of committees and revenue growth is moderately negative but highly significant, whereas the number of committees has no influence on the total shareholder return (r = -0.185; p = 0.037) (see Table 31).

Table 31. Correlations between Number of Committees and Firm Performance Indicators (Total Sample)

Correlations

		5-y TSR Growth	5-y Rev. Growth	ROIC 5y-Average	Rev. Share Mgment Costs	Financ. Lev. 5y-Average
Number Committees	Pearson Correlation	-,185*	-,384**	-.143	-,335**	,191*
	Sig. (2-tailed)	.037	.000	.107	.000	.031
	N	128	128	128	127	128

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Instead, the number of committees is strongly linked to firm size (r = 0.478; p = 0.000), respectively to the board size (r = 0.693; p = 0.000) (see Table 32).

Table 32. Correlations between Supervisory Board Size, Number of Committees, and Firm Size (Total Sample)

		Sup. Board Size	Number Committees	Revenue 2010 EUR Mil
Sup. Board Size	Pearson Correlation	1	,693**	,478**
	Sig. (2-tailed)		.000	.000
	N	128	128	128
Number Committees	Pearson Correlation	,693**	1	,430**
	Sig. (2-tailed)	.000		.000
	N	128	128	128

**. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Thus, it can be concluded that a higher number of committees does not mean that the degree of supervisory board division of labor through committee formation leads to more expertise and monitoring capabilities, which can be transformed into better firm performance. Instead, it can be assumed that the increase of the number of committees is only a result of the rising

complexity of an increasing firm size and is thus a means only for enlarging the process information capacity of the supervisory board.

4.2.7.2. Number of Committees and Total Shareholder Return

The assumption is that TSR-outperformers show a higher degree of supervisory board division of labor than underperformers. The group statistics show a non-equal distribution. While the difference between the means of both groups show, at the first view, only the difference of 1, it must be mentioned that the maximum number of committees in the sample is 6 so that this difference must be seen as relatively considerable. This becomes particularly evident if one considers that companies with one or two committees have generally formed an audit committee and a nomination committee. This means that the difference of one committee should have a larger influence on the supervisory capability (see Table 33).

Table 33. TSR Group Differences Regarding Number of Committees

Group Statistics

		N	Mean	Std. Deviation	Std. Error Mean
Number of Comittees	Top 30	30	2.367	1.9737	.3603
	Bottom 30	30	3.467	1.5477	.2826

Independent Samples Test

		Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
5y Average Financ. Lev.	Equal variances assumed	3.038	.087	-2.402	58	.200	-1.100	.4579
	Equal variances not assumed			.226	57.238	.822	-1.100	.4579

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Note: See Annex VIII for further statistics such as mode and median values. Abbreviations: See the List of Abbreviations.

Indeed, the t-test shows that the difference between both TSR groups is highly significant with the value of p = 0.02 (see Table 33). However, the highest correlation concerning the number of committees exists with supervisory board size (see Table 34). Yet, firm size differences are highly significant so that both groups differ considerably regarding the value distribution in terms of the number of committees. Therefore, in this case, the positive relationship between firm size and number of committees can be excluded as an interferring effect.

However, what seems more important is the fact that in the TSR bottom-30 group, the revenue growth is significantly and highly correlated with the number of committees, while the TSR top-30 group shows only a weak and not significant effect of the number of

committees for TSR-growth and revenue growth. The TSR bottom-30 group provides a correlation of r = 0.700 (p = 0.000) (see Table 34), so that this effect cannot be neglected in particular due to the fact that firm size is equally relevant in both groups, although the TSR bottom-30 group is the group with a significantly higher firm size mean value in terms of revenue in 2010.

Table 34. Correlations between the Number of Committees and Firm Performance Indicators of the Total Shareholder Return Groups

Correlations

TSR Top-30		5-y TSR Growth	5-y Rev. Growth	Sup. Board Size	5y Average ROIC	Exec. Comp/Rev. Ratio	5y Average Financ. Lev.	Revenue 2010 EUR Mil
Number of Comittees	Pearson Correlation	-.227	-.325	,724**	-.227	-.284	.159	,482**
	Sig. (2-tailed)	.228	.079	.000	.228	.135	.403	.007
	N	30	30	30	30	29	30	30

TSR Bottom-30		5-y TSR Growth	5-y Rev. Growth	Sup. Board Size	5y Average ROIC	Exec. Comp/Rev. Ratio	5y Average Financ. Lev.	Revenue 2010 EUR Mil
Number of Comittees	Pearson Correlation	-.013	-,700**	,669**	-.112	-.300	,483**	,415*
	Sig. (2-tailed)	.944	.000	.000	.557	.108	.007	.023
	N	30	30	30	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Here, a multiple regression analysis is necessary to further examine the explanatory power of the number of committees. Yet, regarding research proposition P6b it must be, at first, stated that unlike in the case of the total sample, the number of committees shows a highly and significant correlation with firm performance. Yet, because a correlation is not a causal effect, this observation must be critically reflected because the interpretation of this result in a causal context would mean that the higher the number of committees, the lower is the firm performance. This conclusion is apparently illogical in particular in comparison with the TSR top-30 group, which is the TSR-growth outperformer group, in which the number of committee does not explain TSR growth. In this respect, it must be assumed that the higher number in the context of decreasing TSR is only a result of a distressed situation. The underlying assumption is, therefore, that distressed companies form more committees to increase the supervisory capacity. However, the hypothesis aims at explaining the increase of firm performance parameters. Therefore, the overall conclusion is that proposition P6b must also be rejected with the restriction that the number of committees increases among distressed companies.

4.2.8. Code Compliance Effect on Profitability

Research proposition P7 is that the higher the good governance degree, the higher is the management efficiency in terms of profitability (ROIC). Therefore, the main variable used in the preceding tests is the number of exceptions to § 161, so to speak as the key corporate governance indicator. However, the correlation between ROIC and the degree of compliance with the German Corporate Governance Code ("Number of Exep. & 161 AktG) is next to zero (r = 0.068, p = 0.446) (see Table 35).

Table 35. Correlations between Code Compliance and Firm Profitability (Total Sample)

Correlations

		Sup. Board Size	Sup. Board Compensation	Exec. Board Compensation	Number Sup.Board Meetings	Number Committees	Number Excep. § 161 AktG	Number Excep. DCGK § 5
ROIC 5y-Average	Pearson Correlation	-.072	-.025	-.030	.150	-.143	.068	.055
	Sig. (2-tailed)	.419	.778	.736	.091	.107	.446	.538
	N	128	128	128	128	128	128	128

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

The question occurs regarding whether any other corporate governance variable has any influence on the profitability of the firm. Before answering this question, it should be reflected which causal relationship may exist between profitability and supervisory board activities. It can be noted that profitability is initially the main domain of management. The executive board decides how to invest the firm's capital. The management is employed, at least theoretically, by the shareholders to make use of the firm's capital to generate the maximum profit out of the shareholder's equity.

However, none of the relevant variables inciting management to invest in a profitable way or inciting the supervisory board to monitor the management's investment activities show any sign of an effect. Neither the supervisory board compensation nor the executive board compensation has any influence on the ROIC (see Table 35), which may question whether the focus of the incentivizing effects really focuses on the most important issues, because weak profitability in particular with a high financial leverage triggers financial distress. This missing incentivizing effect is in this context all the more relevant because the correlations between the financial leverage and governance costs are also close to zero (see Table 36)

Table 36. Correlations between Financial Leverage and Governance Costs (Total Sample)

		Sup. Board Compensation	Exec. Board Compensation	Rev. Share Mgment Costs
Financ. Lev. 5y-Average	Pearson Correlation	.146	,182*	-.084
	Sig. (2-tailed)	.100	.039	.347
	N	128	128	127

*. Significant at the 0.05 level (2-tailed). **. Significant at the 0.01 level (2-tailed).

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Neither the level of the total sum of supervisory board compensation nor the total sum of executive board compensation shows any influence on the financial leverage. Even the share of management costs to revenue indicates no effect. Therefore, in the context of the principal–agency theory, it must be questioned whether the existing incentivizing instruments, which are mainly performance-based compensation schemes, are really effective and serve equity holders' interests.

4.2.9. Effect of Code Compliance on Performance (Regression Model)

The previous proposition tests indicate that none of the compliance variables or governance structure variables have an effect on firm performance in terms of revenue growth, profitability, and total shareholder return. Based on the discussion in Section 1.2. the main reference frame for good corporate governance discourse is shareholder interests. Therefore, the following multiple regression analysis tests the cumulative effect of all compliance variables of the German Corporate Governance system on total shareholder return. Additionally, other governance structure variables are included as well as the control variable firm size. Thus, it can be measured to which degree corporate governance compliance influence shareholder benefit in terms of TSR.

Twelve corporate governance characteristics are included in the final testing to examine their cumulative impact (see Table 37). Included are all six code compliance variables as well as other variables describing the governance structure such as board size, board meeting frequency, and other variables. The following variables remained unchanged: (1) supervisory board size, (2) number of supervisory board meetings, (3) number of committees, (6) nomination committee established/not established, (7) audit committee established/not established, (8) strategy committee established/not established, (9) exception to DCCK §5.4.2

(board independence), and (10) exception to DCGK 5.4.6 para. 2 (performance-based supervisory board compensation). (11) The number of exceptions to § 161 as an indicator for the compliance with the DCGK is recoded by ranking the companies according to their number of exceptions, whereas the highest rank is assigned to the company with the lowest number of exceptions as an indicator for the highest degree of good corporate governance in the sense of DCGK compliance, and vice versa. The same procedure was conducted with (12) the number of exceptions to DCGK §5. Additionally, all the fundamental financial variables collected for this sample (revenue growth, ROIC)—which should have an influence on the total shareholder return as well as the percentage of management compensation from revenue are entered step-wise, respectively block-wise, so that these variables are tested in every case (see Annex VII). Additionally, firm size in terms of revenue is included in the first model by block-wise entry due to the size effects determined in the bivariate correlation analysis. The syntax of the multiple regression analysis is documented in Annex VII.

Table 37. Descriptive Statistics of all Variables included in the Multiple Regression Analysis (Total Sample)

	Mean	Median	Mode	Std. Deviation	N
5-y TSR Grotwh	14.36	14.30	#	18.46	127
5y Average ROIC	10.67	10.80	#	8.79	127
5-y Rev. Growth	8.78	8.18	#	11.51	127
Revenue 2010 EUR Mil	11865.74	1380.50	#	26804.24	127
Sup. Board Size	10.98	10	6	5.80	127
Exec. Board Size	4.35	4	3	1.82	127
Number Board Meetings	5.61	5	4	2.08	127
Number of Comittees	2.98	3	4	1.90	127
Nomination Committee (yes=1, no=0)	0.63	1	1	0.48	127
Audit Committee (yes/no)	0.78	1	1	0.42	127
Strategy Committee (yes=1, no=0)	0.20	0	0	0.40	127
Excep. § 161 AktG (ranked)	59.27	4	0	39.29	127
Excep. DCGK § 3 (yes=1, no=0)	0.59	1	1	0.63	127
Excep. DCGK § 5 (ranked)	53.90	2	0	41.59	127
Exeptions to DCGK Zif. 5.4.2 (yes=1, no=0)	0.03	0	0	0.18	127
Excep. DCGK § 5.4.6 Abs. 2, (yes=1,	0.29	0	0	0.46	127
Rev. Share Mgment Costs	0.005	0.003	#	0.01	127

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

The total sample includes 128 companies. One company is excluded due to partially missing corporate governance data. Yet, this company belongs to the SDAX index and is thus a very small one, which does not influence the explanatory power of the final model for the total sample. Concerning the corporate governance parameters, the sample statistics (see Table 37) are shown for the average company of this sample (see Annex VIII for modus and median values)

- 11 supervisory board members
- 4.4 executive board members
- 3 committees
- 5.6 supervisory board meetings p. a.
- 0.005% of the revenue is paid for managers.

Due to the block-wise entry of the control variables, Model 1 includes all control variables. The R-squared value of $r^2 = 0.219$ ($r = 0.468$; $p = 0.00$) shows that the control variables explain 22% of the variance of the total shareholder return (see Table 38). Model 2 includes only one of the compliance variables, while all other variables are excluded (Table 39), so that model 2 is the final model. The only variable not excluded is the exception to DCGK § 3 ("Except. DCGK § 3") regulating the risk liability of supervisory board members (see Table 38). All other variables are excluded due to their low significance (Annex XI)

Table 38. Multiple Regression Analysis Model Summary and Change Statistics (Total Sample), Final Model

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	,468[a]	.219	.200	16.50865	.219	11.510	3	123	.000
2	,515[b]	.265	.241	16.08576	.046	7.552	1	122	.007

a. Predictors: (Constant), Revenue 2010 EUR Mil, 5y Average ROIC, 5-y Rev. Growth

b. Predictors: (Constant), Revenue 2010 EUR Mil, 5y Average ROIC, 5-y Rev. Growth, Excep. DCGK § 3

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne.

Based on the results concerning the significance of the excluded variable, these variables could be eliminated to calculate a better final model with a higher explanatory power. However, the objective of this research is not to define a causal model that fits best. On the contrary, this research examines the effect of the German corporate governance system that consists of more than one variable. Excluding the excluded variables to run the multiple regression analysis with the only remaining variable would not lead to a new model, but only

a modest increase of the explanatory power with no effect on answering the research question. Therefore, an additional test is not in the interest of this research design.

The F-ratio in the ANOVA table for Model 2 (see Table 39) indicates whether the overall regression model is a good fit for the data. Table 39 shows that the independent variables statistically significantly predict the dependent variable, F (4, 122) = 10.981, p = 0.000. Consequently, Model 2 is a good fit of the data, because the null hypothesis must be rejected.

Table 39. Multiple Regression Analysis – Variances

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9410.735	3	3136.912	11.510	,000[b]
	Residual	33521.875	123	272.536		
	Total	42932.610	126			
2	Regression	11364.913	4	2841.228	10.981	,000[c]
	Residual	31567.696	122	258.752		
	Total	42932.610	126			

a. Dependent Variable: 5-y TSR Growth

b. Predictors: (Constant), Revenue 2010 EUR Mil, 5y Average ROIC, 5-y Rev. Growth

c. Predictors: (Constant), Revenue 2010 EUR Mil, 5y Average ROIC, 5-y Rev. Growth, Excep. DCGK § 3 (yes=1, no=0)

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne.

Due to the low explanatory power, the final model robustness check seem to be irrelevant, because with an r^2-change of 0.046 caused by the exception from risk liability for supervisory board members, the effect of code compliance on firm performance seems to be negligible. Based on the coefficients of Model 2, the regression equation of the final regression model is (see Table 40):

> 5-y TSR Growth = 0.689 + 0.453 * 5-y Average ROIC + 0.611 * 5-y Rev. Growth + 6.309 * Excep. DCGK § 3

The control variable firm size (revenue) with B= –0.00002 can be neglected in the interpretation of the results due to its extremely low beta (see Table 40). However, the control variable is the reason why other independent variables are eliminated in the regression model. The result is that all governance variables except one are eliminated due to multi-collinearity issues, which is the function of control variables (see Table 40). The correlation analysis has shown that governance variables have stronger relations with the control variable than with firm performance variables. Furthermore, firm size as a control variable was introduced as a

result of prior research analysis, which has also detected the firm size effect on the governance variable. This multiple regression analysis has shown that fundamental financial values in terms of revenue growth and profitability have significantly stronger explanatory power for the TSR growth than the complete set of corporate governance variables (see Table 40), which is the only relevant result of the multiple regression analysis in the framework of this research design.

Table 40. Regression Model Coefficients.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			order	Partial	Part
1	(Constant)	4.134	2.784		1.485	.140			
	5y Average ROIC	.480	.168	.229	2.858	.005	.221	.250	.228
	5-y Rev. Growth	.638	.130	.398	4.905	.000	.402	.404	.391
	Revenue 2010 EUR Mil	-4.112E-05	.000	-.060	-.735	.464	-.149	-.066	-.059
2	(Constant)	.689	2.989		.231	.818			
	5y Average ROIC	.453	.164	.216	2.764	.007	.221	.243	.215
	5-y Rev. Growth	.611	.127	.381	4.811	.000	.402	.399	.373
	Revenue 2010 EUR Mil	-2.111E-05	.000	-.031	-.384	.702	-.149	-.035	-.030
	Excep. DCGK § 3 (yes=1, no=0)	6.309	2.296	.217	2.748	.007	.273	.241	.213

a. Dependent Variable: 5-y TSR Growth

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

The question remains whether the absence or the existence of an own-risk deductible influences firm performance in the sense of a causal relationship. The descriptive statistics show that 70 companies declare non-compliance with § 3.8, while 57 companies have concluded a D&O insurance contract containing an own-risk deductible (see Table 41).

Table 41. Group Differences Concerning Risk-Liability (Total Sample)

Group Statistics

Excep. DCGK § 3 (yes=1, no=0)		N	Mean	Std. Deviation	Std. Error Mean
5y-TSR Growth	yes	70	18.8573	18.27275	2.18401
	no	57	8.7314	17.16062	2.27298

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

The comparison of the group with D&O insurance contract containing an own-risk deductible and the group without own-risk deductible reveals that the group without risk-sharing agreements perform better with a TSR growth of 18%, while companies with risk-liability show considerably lower TSR growth of 8.7% (see Table 41). The group differences are highly significant with p = 0.002 (see Table 42).

Table 42. T-Test – Groups with and without Risk-Liability for Supervisory Board Members

Independent Samples Test

		Equality of		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
5y-TSR Growth	Equal variances assumed	.014	.906	3.192	125	.002	10.12588	3.17266	3.84680	16.40497
	Equal variances not assumed			3.212	122.44	.002	10.12588	3.15220	3.88602	16.36575

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Hence, it can be concluded that the own-risk deductible leads to risk-averse supervisory board behavior and thus to lower TSR growth. However, on the other hand, it must be noted that this factor has only a low explanatory power regarding the total shareholder return growth, as the results of the multiple regression analysis show. Instead, it must be determined that it is, first of all, the management performance that influences total shareholder return growth by generating revenue growth and managing the company efficiently and thus profitably, so that, finally, it must be concluded that all other variables concerning supervisory board efficiency and good corporate governance, such as the number of committees, the degree of compliance with DCGK, etc. do not influence the total shareholder performance.

To test the robustness of the final regression model (see Table 40), the same variables are analyzed by the multiple regression analysis without step-wise entry of the performance variables (5y Average ROIC and 5y Rev. Growth) while the control variable firm size (Revenue 2010 EUR m) was excluded, because the multiple regression analysis has shown a slightly negative beta coefficient with a low significance (see Table 40), which is interpreted like firm size has—contrary to prior research discussed in Chapter 2—only a minor effect on governance characteristics. However, also this 'simple' regression, which is not based on theoretical considerations and prior empirical results, shows almost the same result (see Table 43).

Table 43. Model Summary, Change Statistics and ANOVA, Robustness Test Validating the Final Regression Model (Total Sample)

Model Summary[d]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.402[a]	.161	.155	16.97198	.161	24.047	1	125	.000	
2	.465[b]	.216	.203	16.47798	.054	8.607	1	124	.004	
3	.496[c]	.246	.228	16.21981	.031	4.979	1	123	.027	.443

a. Predictors: (Constant), 5y- Rev. Growth

b. Predictors: (Constant), 5y- Rev. Growth, 5y Average ROIC

c. Predictors: (Constant), 5y- Rev. Growth, 5y Average ROIC,Excep. DCGK § 3 (yes=1, no=0)

d. Dependent Variable: 5y-TSR Growth

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6926.58	1	6926.58	24.047	.000
	Residual	36006.03	125	288.05		
	Total	42932.61	126			
2	Regression	9263.66	2	4631.83	17.059	.000
	Residual	33668.95	124	271.52		
	Total	42932.61	126			
3	Regression	10573.51	3	3524.50	13.397	.000
	Residual	32359.10	123	263.08		
	Total	42932.61	126			

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

The same variables are included in the final model explaining the dependent variable TSR Growth whereby the explanatory power is slightly lower (r^2 (adjusted)=0.228 vs. 0.241; see Table 38 and Table 43). The beta-coefficients for all remaining variables of each final model are also only slightly different (see Table 44 and Table 40).

Table 44. Coefficients for the Validation Test of the Multiple Regression Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	8.707	1.897		4.591	.000			
	5y- Rev. Growth	.644	.131	.402	4.904	.000	.402	.402	.402
2	(Constant)	3.384	2.585		1.309	.193			
	5y- Rev. Growth	.655	.128	.409	5.136	.000	.402	.419	.408
	5y Average ROIC	.490	.167	.233	2.934	.004	.221	.255	.233
3	(Constant)	.926	2.773		.334	.739			
	5y- Rev. Growth	.626	.126	.391	4.962	.000	.402	.408	.388
	5y Average ROIC	.468	.165	.223	2.842	.005	.221	.248	.222
	Number of Excep. DCGK § 3 (yes=1, no=0)	4.856	2.176	.176	2.231	.027	.228	.197	.175

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Hence, the validating regression analysis shows that also the testing of the cumulative effect of all governance characteristics do not modify the final regression model, including all governance characteristics (see Table 38) independent from whether one considers the results of prior theoretical and empirical research in the analysis or not. Consequently, the final regression model (see Table 38) can be substantiated, supporting the result that increased risk sharing with supervisory board members has a negative effect on TSR growth.

4.3. Qualitative Analysis of the Impact of the German Corporate Governance Code on Supervisory Board Competence and Procedures

The second part of the empirical research includes expert interviews with supervisory board members active in the supervisory boards of companies among the TSR groups. The objective is to develop a deeper insight of the effects of the German Corporate Governance Code on board procedures and activities as well as on the required board competence to examine the research propositions P9 and P10.

Originally, it was planned to conduct extensive online survey interviews. However, this option was discarded due to the experience in the pretest, which has shown that the interest in surveys is extremely limited among the target group. The pretest has provided many items that are used in the survey as possible responses so that the results could be coded because questions without set answers were avoided. Thus, the results were adjusted and can be evaluated statistically. Only two questions were asked as questions without set answers—the question on the changes of supervisory board work and the valuation of the existing regulation framework of supervisory board activities and structure.

The total shareholder return is the grouping variable for the quantitative analysis as well as for the survey. In total, 30 supervisory board members were interviewed—15 TSR top-30 supervisory board members and 15 TSR bottom-30 supervisory board members. The interviews were conducted mainly by phone; 6 interviews were conducted face-by-face. The main characteristics of this sample are:

1. 5 respondents out of the 30 respondents serve as supervisory board chairman.
2. 5 respondents are female; 25 respondents are male.
3. The average age is 61.6 years (see Figure 13).

4. The average period of service as supervisory board member accounts for 14.4 years (see Figure 13).

5. 97% of the respondents have served as CEO in the course of their professional life.

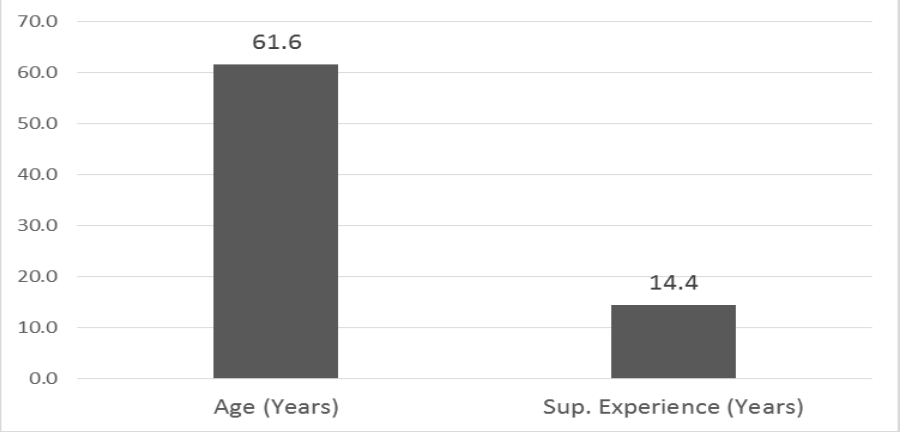


Figure 13. Average Age and Service Period among the Survey Sample (in years)

Source: Author's calculations based on survey data. Abbreviations: See the List of Abbreviations.

The first question aims at the overall functioning and structure of board work. The question was:

1. What is your definition of supervisory board work quality? Multiple answers are possible.
    a) Good Structure, Preparation, and Organization of Board Meetings
    b) Open Culture of Discussion
    c) Cooperation between Management Board and Supervisory Board Concerning Strategy Decisions
    d) Involvement of Supervisory Board Committees in Decision Making
    e) Transparent Supervisory Board Nomination Process

Although many possible issues may describe supervisory board organization and structure, this selection of questions is a result of items generated through a pretest with open questions. Multiple answers were possible. Therefore, it is possible to rank the percentage values. Assume that the sample's supervisory board members see board work quality, firstly, in the cooperation with the executive board, which is generally also the main task of the supervisory board by law and German Corporate Governance Code. Items concerning the internal organization of board work are valued as less important. The supervisory board member nomination process is of minor importance (see Figure 14).

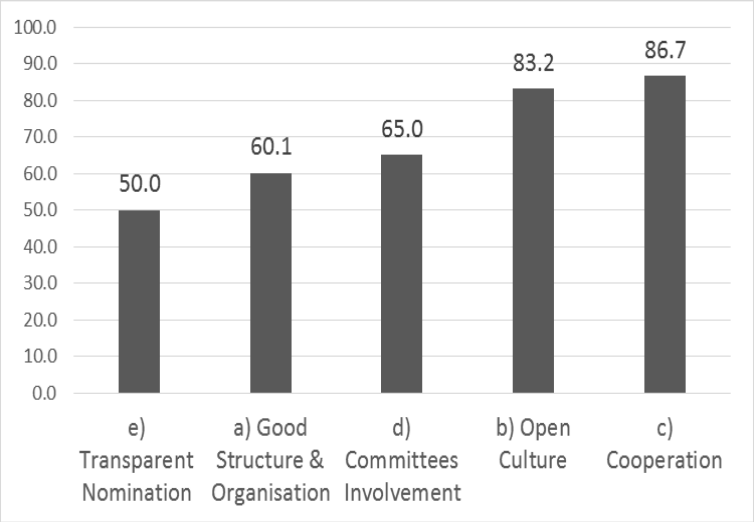


Figure 14. Relevance of Board Items (in % of number of total respondents)

Source: Author's calculations based on survey data.

This result might be interpreted as the respondents value higher the informal and direct cooperation between governance institutions. However, it must be mentioned that this can only be an assumption without clear empirical evidence.

The second question relates to personality traits of supervisory board members. It was asked:

2. Which three personality traits should have a supervisory board member to enhance the quality of work of the supervisory board?
    a) Extraordinary Engagement
    b) Empathy
    c) Special Qualifications and Professional Competence
    d) Analytic Thinking
    e) Sensitivity in the Interaction with Executives
    f) Strategy Thinking and Far-Sightedness

Again the listed items were generated through a pretest with open questions. Thus, it can be stated that these items are not arbitrary but relevant from the supervisory board's perspective.

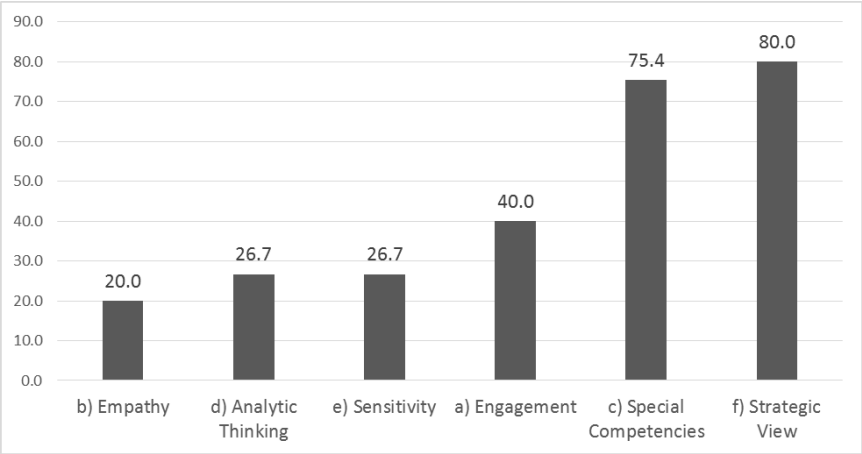


Figure 15. Relevance of Supervisory Board Member Personal Traits (in % of number of total respondents)

Source: Author's calculations based on survey data.

However, it can be noted that the results from Question 1 cannot be supported in regarding personal traits (see Figure 15). Instead, the results show that formal competencies are preferred instead of informal abilities such as a strategic view (see Figure 15). Accordingly, in the context of Question 1, it can be stated that the majority of the respondents tend to prefer a mix of formal and informal characteristics regarding individual qualification while in the context of 'daily operations' of the supervisory board informal values are preferred.

This formal–informal mix is even more pronounced with the question regarding the competence areas of members and the board as an institution. Question 3 asks for personal competence as well as for institutional competence, based on an item list also generated in the pretest. Question 3 is divided into two sub-questions:

3.1 Which essential areas of competence shall have one Supervisory Board at least?

a) International Working and Leadership Experience
b) Working Experience in Different Industries
c) Supervisory Professionalism in the Form of Holding Several Supervisory Mandates
d) Combined Mandates as Supervisory Board Member and CEO in Different Organizations
e) Long-Time Experience as CEO
f) Cross-Functional Experience

The item "cross-functional experience" refers to experience in different corporate areas such as marketing, R&D, finance, etc.

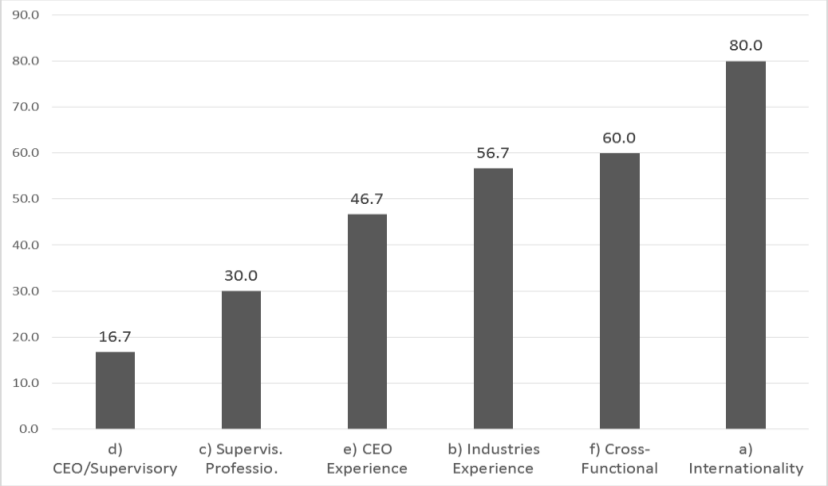


Figure 16. Competence Requirements for Board Members (in % of number of total respondents)

Source: Author's calculations based on survey data.

Interdisciplinary experience with an international background is the requirement with the most hits (see Figure 16). Instead, formal experience as a supervisory board member (item (c) and (d)) are not often required. Thus, the requirement ranking looks more than like a strategist profile. Furthermore, the respondents refer stronger to soft skills and informal abilities than formal experience with supervisory board formalities such as supervisory board experience.

Question 3.2 asks for the c:

> 3.2 Which essential areas of competence shall have the Supervisory Board as Governing Body?
>
> a) Broad Spectrum of Professional Experience
>
> b) High Division of Labor through Committee Formation
>
> c) Experienced Chairman
>
> d) General Diversity

The item "General Diversity" refers not only to gender diversity. However, the experience with the questionnaire in the survey leads to the assumption that mostly gender diversity is associated with this term. Therefore, the interpretation of this value refers to gender diversity.

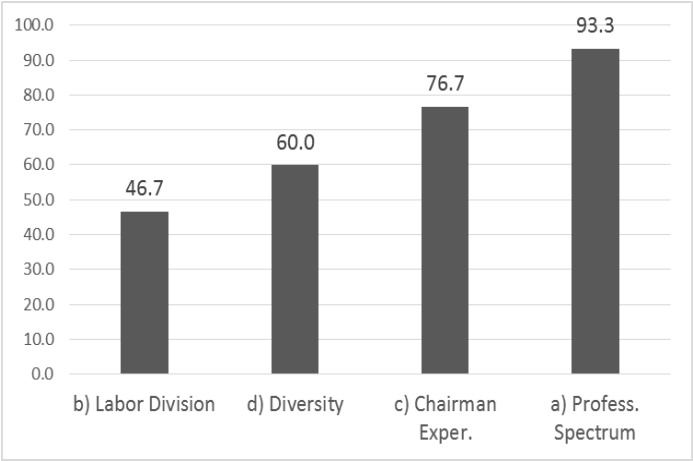


Figure 17. Supervisory Board Competence Characteristics (in % of number of total respondents)

Source: Author's calculations based on survey data.

The respondents weight the professional spectrum embodied in the supervisory board as extremely important with 93% (see Figure 17), which is the second highest approval rate measured in all questions. Furthermore, the chairman is seen as a central element in the supervisory board activities. Instead, even diversity is surprisingly valued higher than the division of labor through committee formation. Thus, again, the assumption gained from the preceding findings that the informal factors outweigh the formal values such as labor division through committee formation, formal experience as a supervisory member, structure, and organization.

Question 4 refers to the activity priorities of the supervisory board and provides thus an idea of the supervisory board members' self-understanding of their role. It was asked:

4. Which activities do you consider as the most important task of the supervisory board?
    a) Executive Board Nomination and Supervision
    b) Approval of Submitted Plans and of the Corporate Strategy
    c) Compliance and Risk Monitoring
    d) Approval of Essential Investment Activities as well as of Mergers & Acquisitions
    e) Strategy Directives
    e) Support and Consulting Regarding Business Operations
    f) Co-Decision Concerning the Second-Level Management

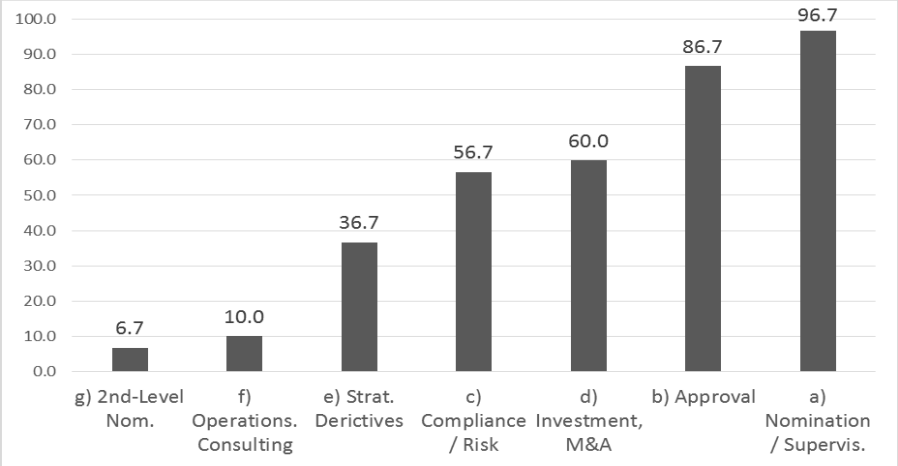


Figure 18. Activity Priorities of the Supervisory Board (in % of number of total respondents)

Source: Author's calculations based on survey data.

Contrary to the previous assumptions, the supervisory board members' self-understanding of their role shows high formalism. While all other questions indicate a preference for informal items, the supervisory board members see their role as strictly formal with a 96% approval rate concerning formal activities for nomination and supervision of the executive board (see Figure 18). Instead strategic and operational issues were not seen as priority activities. Thus, it can be concluded that tendency toward informal abilities and procedures does not mean that the interviewed supervisory board members reject formalism. Rather, they distinguish clearly between necessary formalization and the regulatory framework requirements. This becomes even clearer in the answers to question 5.

Question 5 is a question without set answers, referring to the changes of the supervisory board practices in the last decade. The question is:

> 5. From your experience as a supervisory board member: How has supervisory board practice changed in the last 10 years? Please name positive and negative changes!

The answers regarding positive changes refer astonishingly often to the rising degree of formalization. Thus, one board member explains that the supervisory board practice is more and more determined by standardized workflows due to the German Corporate Governance Code, which applies, in particular, concerning risk and compliance issues. Here, the regulatory necessities lead to, on the one hand, more periodical reports and thus to a higher density of company data and information. On the other hand, these increasing corporate governance requirements lead to information and formalization overload. One interviewee notes positively that, due to increasing information flow, the information advantage of

employee representatives to the board as corporate insiders diminishes. Nevertheless, he mentioned further that also the number of resolutions has increased due to regulatory requirements, because the increasing liability risks lead to elevation of “approval barriers” concerning executive board decisions.

Thus, these statements reflect an ambivalence that exists also concerning the regulatory pressure regarding committee formation. One respondent mentioned that the rising number of committees and the rising intensity of committee work leads to better preparations of supervisory board decisions. Yet, this leads, on the other hand, to a ‘two-classes society’ in the board room. While members who are active in committees are increasingly better informed, board members without a membership in committees receive less information as earlier, because some years ago much more information circulated in the board room, which is now outsourced to committees. This can lead, in the worst case, to a disproportionate communication effort. One member notes that this tendency of increasing information circulation volume is triggered additionally due to the rising demand of information on the part of the supervisory members.

The major parts of the statements to Question 5 refer to information, communication, regulation, reporting, formalization, and division of labor. On the one hand, the majority of positive statements refer to the positive effects of board workflow structuring and the continued information flow due to regulations, while on the other hand, the same interviewees mentioned the problem of work intensification, increasing coordination efforts, and excessive formalization. Usually, all these changes are traced back to regulatory effects, particularly in the German Corporate Governance framework. Several respondents pronounce that another effect of this excessive information circulation is that the ‘average’ board meeting is much more informed and the discussions are based on more facts than before. One respondent mentioned that several years ago, most of the board meetings were about gathering information from executives, instead of discussing essential issues. Furthermore, one member stated that the board independency rules have led to the selection of new members based on their expertise and not based on their membership in a social network. The influence of block holders is seen as diminished. Additionally, the nomination process is also more based on information. Skills and experience are more sought-after. This leads to a higher diversity of knowledge and skills in the boardroom. Additionally, the nomination procedures are much more transparent than years ago. One interviewee summarized both developments as follows: Due to both effects—higher information density and higher diversity of abilities—all of the supervisory board work is much more professional than before. But therefore, also the

informal personal skills of board members are becoming increasingly more relevant. Today, the real challenge is not to collect information but to use information and data in the communication and coordination between the supervisory board and management team. This also influences the supervisory board member nomination process. One respondent observed in several supervisory boards, in which he is a member, a trend towards "complementary diversity". Members are nominated more and more due to their complementary experience and knowledge. On the other hand, this search for special skills and knowledge takes much more time to find appropriate candidates than years ago.

Consensus is that the regulations lead, on the one hand, to more board procedure quality and higher information. But, one the other hand, many respondents requested a purification of existing regulatory framework. One interviewee stated that the German Corporate Governance Code (DCGK) focuses too much on the large DAX30 companies. In smaller companies, the "complete machine", which the DCGK requires, is dysfunctional so that according to their experience in smaller companies, the decision is: "*Rather explaining exceptions than following the rules*". Furthermore, 7 interviewees remarked explicitly that the increasing liability risks strongly influence board work, in particular, concerning the direction of discussions where more and more liability risks are discussed resulting in slow decision-making at times, lengthy discussions, and the need for additional data. One respondent even observes that more and more supervisory board member candidates reject the nomination due to liability risks.

Accordingly, the statements to the last question evaluating the existing regulatory framework provide additional data, which supports also the quantitative–empirical findings of this study. Question 6 is:

> 6. If you are in the German Corporate Governance Code Committee: Which essential change would you propose to increase the quality of supervisory board activities?

Except for one respondent, all other interviewees provided statements criticizing the high density of the German Corporate Governance Code regulations. Only one supervisory board member proposed a supplement to the existing rules. She proposed that the supervisory board should have an own budget to buy in external expertise in the form of special reports and ratings concerning different aspects such as, for example, compliance auditing and risk management auditing. All other respondents noted that the existing regulatory framework is partially excessive and leads to higher efforts without higher efficiency regarding the monitoring tasks or regarding the main task, which serves the shareholders' interests.

However, one respondent explains explicitly that the German Corporate Governance Code has made an important contribution to avoiding principal–agent issues.

4.4. Discussion of the Data Analysis Results

Concerning the quantitative analysis, the results can be summarized as follows:

(1) The number of exceptions concerning the essential parts of the German Corporate Governance compliance reports remains stable in a five-year period.

(2) The results of all bivariate analyses lead to the complete rejection of the first three statements to be defended. None of the single governance factors show a higher and significant correlation with the firm performance indicators *revenue growth*, *profitability* and *total shareholder return*. Only revenue growth and corporate governance degree show low, but negative correlation.

(3) This applies to the total sample as well as to the TSR groups. Concerning the cumulative effect of all corporate governance variables, only the exception from the risk liability for supervisory board members have had a positive effect on the total shareholder return growth as the multiple regression model has shown.

(4) Instead, some counter-intuitive findings occur, for example, the TSR outperformers show lower management costs, have smaller boards and lesser committees, while the executive board compensation and the supervisory board compensation is not linked with firm performance. Furthermore, the supervisory boards of TSR outperformer companies have generally not introduced a higher risk liability. The descriptive statistics of the total sample shows that 70 companies declare non-compliance with § 3.8, while 57 companies have concluded a D&O insurance contract containing an own-risk deductible. However, the comparison of the group among the total sample with D&O insurance contracts containing an own-risk deductible and the group without an own-risk deductible reveals that the group without risk-sharing agreements performs better with a TSR growth of 18%, while companies with risk-sharing show considerably lower TSR growth of 8.7%. The group differences are highly significant with p 0.002. This is also confirmed by the regression model outlined in Table 38. However, it must be noted that this factor has a low explanatory power regarding the total shareholder return growth. Instead, it must be determined that it is the management performance that influences total shareholder return growth.

(5) Also the multiple regression analysis indicates that even the cumulated influence of all variables is negligible except the exception to DCGK § 3.8. recommending the introduction of a risk liability for supervisory board members. This effect was negative. The additional analysis has shown that companies not following the recommended risk liability for supervisory board members perform better than complying companies. The validation of this final model was supported by an additional multiple regression analysis excluding the control variable firm size which was included in the final model due to the results of prior research. It was proven that fundamental data in the form of financial values such as revenue growth and profitability have a significantly stronger explanatory power for the TSR growth than the complete set of corporate governance variables.

(6) Executive board and supervisory board compensations have only very low effect on revenue growth, TSR growth or profitability which they should have according to the principal–agent theory. In this context, it should be mentioned that the descriptive analysis of the total sample indicates that the supervisory board compensation increase in the observation period has exceeded strongly the increase of management compensation. But, no reason such as board size increase or an increasing number of board meetings was found.

(7) Some corporate governance variables such as number of committees and board size are closely connected to firm size. Consequently, it can be said that some main differences in the corporate governance regimes originate from the growing complexity of larger firms.

(8) Board size is only a function of company size in terms of revenue and does not indicate a higher supervisory efficiency in terms of positive results on firm performance. This result is supported also by recent research.[370]

(9) The existence of a strategy committee has no effect on firm performance.

Concerning the qualitative analysis, the results can be summarized as follows:

(1) The results of the survey confirmed the fourth statement for defence. The administrative efforts and thus the monitoring cost seems to be on the increase. Many supervisory board

[370] Upadhyay, A. D., Bhargava, R., & Faircloth, S. D. (2014). Board structure and role of monitoring committees. *Journal of Business Research*, 67(7), 1486-1492.

members stated that discussions take longer, more data are required to estimate risks and to identify risk issues, and more time must be spent to fulfill the regulatory requirements.

(2) The second and maybe the most relevant finding of the survey is the fact that many respondents mentioned the rising risk awareness, resulting even in the problem to find new candidates for the supervisory board. This result converges exactly with one, but maybe the most surprising, result from the multiple regression analysis discussed in the previous section.

(3) Most of the regulations particularly in the form of the German Corporate Governance Code have had an important influence on the quality of supervisory board activities and board procedures. This applies in particular regarding the information provision, board independence, board diversity in various dimensions, and other requirements.

(4) The quality of the supervisory board procedures has increased due to the German Corporate Governance Code. The refining of the code concerning the management's reporting duties has led to information exchange between management board and supervisory board so that more information is available particularly through periodical reports. However, the information is not equally distributed. It seems as if the constant stream of information exists mainly between the committees and the management whereas supervisory board members who are not committee members do not always possess and share additional specific information.

(5) The increasing requirements of the German Corporate Governance Code led to a formalization overload to fulfill the regulatory framework and more time spent for compliance and risk issues whereas the risk awareness seems to have increased disproportionally. Therefore, the general opinion of the interviewees rejects additional rules for the German Corporate Governance Code and question whether the existing body of recommendations and rules really serves the shareholder's interest.

(6) The increasing codification concerning committee issues has led to an increasing number of committees which leads, on the one hand, to a higher information density in the context of decisions-making, but has intensified the work load in the committees so that more supervisory board members who are also committee members have to invest more time in committee work.

(7) The interviewed supervisory board members understand their role as being strictly separated from management decision making. Hence, the increasing number of recommendations of German Corporate Governance Code has not led to a softening of the two-tier system. Strategic and operational decision-making remains in the realm of the executive board, whereas the supervisory board remains a monitoring entity in the corporate governance structure. However, the nomination and the selection of new members is more rational and not dominated by social networks.

(8) Relative to the fifth statement for defence concerning the nomination process and the required board competence, it seems to be the general opinion that informal and specific competence is more required than business skills such as industry experience, CEO experience or supervisory experience. On the contrary, the ability to cooperate, internationality, a strategic view or specific skills such as financial skills or legal abilities seem to be more required. Hence, the general opinion is that specific formal and additional informal skills are necessary.

Thus, the findings from the qualitative analysis support and supplement the results of the quantitative analysis. The qualitative and quantitative analysis have shown that the maximum fulfillment of good corporate governance standards has no effect on firm performance neither in terms of revenue growth or profitability nor in terms of shareholder return. Instead, it is determined that growth outperformers of the sample comply to a lesser extent with German good corporate governance standards. Growth outperformers show lower management costs and supervisory board compensations, and they have smaller supervisory boards and less committees, while supervisory board compensation is not linked with firm performance and the risk liability of supervisory board members is lower. It is determined that the higher the number of exceptions to good corporate governance, the higher is the firm performance and the degree of shareholder interest fulfillment in terms of total shareholder returns (TSR). Additionally, the interviewed supervisory experts have noted the increasing workload in terms of administrative activities and the increasing risk awareness leading more and more to risk aversion whereas the multiple regression analysis has shown that companies with no risk liability perform better.

Considering prior empirical research results, it must be repeated that some variables—also examined in this study such as board independence, meeting frequency, board size, and other variables—have shown heterogeneous results. Some studies have indicated positive relationship with performance, some negative or neutral relationship. This study’s literature

review has noted that there is no clear evidence on the effect of several different variables. Other factors such as performance-based board compensation or audit committee specifications are German governance system specifics resulting from the German Corporate Governance Code, which has existed in its current form only since 2010. Therefore, recent studies on the German governance system mentioned in Section 2.3 could not have included such variables, while other studies concerning other countries could not have measured such variables or, at least, could not have colleced values for comparable variables. Therefore, the direct comparison of this study's results, particularly with prior research applying a cross-country approach or focusing on other countries than Germany, is not meaningful because this study can only claim to have provided evidence on effects for a time- and country-specific governance model, which is represented by the German Corporate Governance Code in its post-2010 constitution. As mentioned in Section 2.3, only a few studies have examined the German Corporate Governance system in recent years. None of these studies have examined governance characteristics of individual firms based on their annual compliance statement such as this study. Therefore, a comparative discussion of this study's research results with prior research is not possible.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study provides empirical evidence that main elements of the German corporate governance system are irrelevant for shareholders and other stakeholders or are even against their interests. From the results of the quantitative and qualitative data analysis is to be **concluded**:

(1) The main hypothesis must be rejected. The study shows that companies complying to the German Corporate Governance Code in full are worse off than companies that do not follow the rules. The qualitative and quantitative analysis has shown that the maximum fulfilment of good corporate governance standards has no effect on firm performance neither in terms of revenue growth or profitability nor in terms of shareholder return. The first research question was answered as follows: Good corporate governance and board activities explain firm performance differences, but not in the assumed direction. This study has found evidence that the lesser a company follows the German Corporate Governance system the better is the firm performance.

(2) The second research question was answered as follows: Outperforming companies comply to a lesser degree with the German Corporate Governance system whereby the salient difference is that total shareholder return growth companies have not established a risk liability. This result of the quantitative research was also supported by the qualitative research (survey): Several participants have stated that risk aversion has increased in the last years. Both together indicate that supervisory board entrepreneurship thinking is blocked by increasing risk liability resulting from the code as well as from establishing an own-risk deductible included in the directors' and officers' liability insurance (D&O insurance).

(3) There appears to be a conflict between responsibility for economic performance, personal liability and its avoidance, risk and value management. When full compliance with governance procedures is targeted, no added value appears being created. This sample's successful companies in terms of revenue growth and total shareholder return do comply lesser with good corporate governance rules. This questions the level of good corporate governance standards represented in this study by the German Corporate Governance Code.

(4) As the increase of executive board and supervisory board compensations has no effect on revenue growth and TSR growth, incentivisation is not an automatism resulting in an increase to the benefit of principals (shareholders and other stakeholders).

(5) Management is rather paid for complexity management than for firm performance or total shareholder return growth. This questions the existing concepts of incentivisation as a core result of the principal-agent theory which is also supported by recent research.

(6) A higher number of committees does not lead to better firm performance but is a result of higher and more complex monitoring requirements in larger companies. The survey results provide some hints that a higher number of committees is dysfunctional, so that it can be concluded that some kind of a marginal utility concerning code compliance exists, whereas the TSR top-30 companies show an extremely lean supervisory board structure and the TSR bottom-30 an extremely big ‘supervisory machine‘ as one of the interviewed supervisory board members has noted.

(7) Highest possible compliance with good corporate governance procedures defined by the German Corporate Governance Code leads to risk aversion and administrative overload so that entrepreneurial thinking is replaced by formalism and does not provide benefit for principals who are, in the German context, not only the shareholders but also other stakeholders such as the employees and their supervisory board representatives. Especially, high own-risk deductibles in D&O policies lead to risk-averse supervisory board behavior and thus to lower total shareholder return growth.

(8) Based on the relative inefficiency of the tested governance variables and the overall consensus of the survey, the regulatory marginal utility has been achieved. The system of rights and responsibilities should not prevent the company from serving the shareholders’ and other stakeholders’ interests by obstructing entrepreneurial risk taking and over-formalization due to over-regulation.

Recommendations

Based on the research conducted, the author makes the following recommendations:

To the German Government Commission:

(1) To review the existing German Corporate Governance Code concerning its relevance in accordance with the original objective of the regulator due to the issue of diminishing marginal return of the existing German good corporate governance regime. The Government Commission of the German Governance Code is to more intensively deal with subjects relative to supervisory boards and the consensus-oriented culture within German corporations. The increasing adoption of voluntary code recommendations into the legal body is to be limited;

(2) To clarify and clearly label which of the codex regulations are voluntary or are already legally binding and clarify governance measures as a result of non-compliance with codex regulations;

(3) To harmonize the reporting instruments of the governance regulations as to compliance declarations, management reports, corporate governance reports, annual reports, and efficiency reviews of the supervisory board;

(4) To reduce the risk liability of supervisory board members to avoid risk aversion which is particularly an issue for high-growth companies. Only for companies in specific situations or in an industry such as the financial industry a higher risk liability should be considered to avoid a growing debt/equity ratio or to ensure that the supervisory board enforces a higher risk-management level;

To shareholder committees and to shareholder representatives respectively:

(1) To not necessarily follow the German Corporate Governance Code in every single paragraph as it seems to be the general case in the sample. Instead, boards shall explain exceptions if the compliance with specific rules is not justified by firm-specific and board-specific requirements. From the perspective of a growth firm, for example, factors such as minimal monitoring costs and higher risk acceptance are more relevant than in the case of mature companies. Even the customary ‘comply or explain’ rule, which forces to explain all exceptions lengthy and in detail, is to be reconsidered and eased. It shall be the responsibility of the management (CEO) to

decide which regulations of the code are to be denied upon good reasons in order to find a balance between a supervisory, liberal as well as trust culture while being relieved from lengthy explanations and excessive personal liability;

(2) To closely evaluate performance-based supervisory board compensations concerning the cost-benefit ratio, as performance-based supervisory board compensation has proven to have no significant effect on firm performance. The level of supervisory board compensation should only be accommodated to the market price of expertise, experience, and capabilities needed in specific situations and bench-marked with successful companies in the same sector and at the same size;

To supervisory board chairmen and supervisory board members:

(1) To establish at least a nomination and an audit committee although not regulatory mandatory. Strategy or Technology committees are only useful in companies with complex technological challenges;

(2) To secure board independence as vital principle;

(3) To evaluate the board size always concerning the actual workload because prior studies have shown that a board size beyond nine or ten members enhances inefficiencies in the decision-making process, whereas this study has found that larger boards do not correlate with firm performance. Therefore, it is recommended to cap the supervisory board size;

(4) To search for nominees holding several supervisory mandates in comparable companies in non-competing business sectors as multiple board membership leads to higher supervisory board experience and quality;

(5) To adapt the meeting frequency to the specific situation of the company and the administrative necessities given by legal requirements. Hence, it must be questioned if supervisory boards should limit their meetings to a quarterly schedule. As most companies in the sample face economic challenges, a higher meeting frequency is suggested;

(6) To observe management compensation. Management compensation is one of the most important incentive instruments for the supervisory board to influence management behavior. Overall it must be mentioned that incentivisation should

always be evaluated concerning the cost-benefit ratio, because the simple causal automatism between incentive and desirable behavior is questionable particularly concerning the manifold possibilities of creative accounting policies;

(7) To avoid a standardized profile for supervisory board education and experience. Instead, the nomination board should decide individually and situationally in accordance with the complete supervisory board, which complementary competence and experience would be necessary in the firm-specific or board-specific situations;

(8) To professionalize board activities, workflow and working procedures so that board members can extent their full attention to the development of firm performance instead on formal and administrative requirements imposed by the regulator. By now, the supervisory board does not have own budget in its disposal and depends financially on the CEO. Therefore, the supervisory board would need to be independently able to dispose on an own budget to buy-in necessary competence for a limited period of time;

And finally to scientists in the field of corporate governance research:

(1) To extend the study in size by including stock listed companies of other countries with equivalent corporate governance regulations;

(2) To compare the results with companies regulated by a monistic corporate governance system;

(3) To look into the supervisory board ‘black-box’ and research the interactions with view to their impact on firm performance.

References

Abdul Rahman, R., & Mohamed Ali, F.H. (2006). Board, audit committee, culture and earnings management: Malaysian evidence. *Managerial Auditing Journal, 21*(7), 783–804.

Achtenhagen, L., & Naldi, L., & Melin (2010). Business Growth —Do Practitioners and Scholars Really Talk About the Same Thing? *Entrepreneurship Theory and Practice, 34*(2), 289–316.

Agrawal, A. & Knoeber, C. R. (1996). Firm Performance and Mechanisms to Control Agency Problems between Manager and Shareholders. *Journal of Financial and Quantitative Analysis, 31*(3), 377–89.

Akbar, S., Poletti-Hughes, J., El-Faitouri, R., & Shah, S. Z. A. (2016). More on the relationship between corporate governance and firm performance in the UK: Evidence from the application of generalized method of moments estimation. *Research in International Business and Finance*, 38, 417–429.

Ali, P., & Gregoriou, G. N. (2011). *International Corporate Governance After Sarbanes-Oxley*. New York: Wiley.

Altman, M. (2015). *Real-World Decision Making*. Santa Barbara: Greenwood.

Aluchna, M., & Aras, G. (2016). *Transforming Governance: New Values, New Systems in the New Business Environment*. Milton Park: Routledge.

Ampenberger, M., & Schmid, T., Kaserer, C., & Achleitner, A. (2009). *Family preferences and payout policy decisions: Are there differences between family ownership and management*? München: TU München.

Anderson, R., Mansi, S., & Reeb, D, (2004). Board characteristics, accounting report integrity, and the cost of debt. *Journal of Accounting and Economics, 37*, 315–342.

Aras, G. &, Crowther, D. (2012). *Governance and Social Responsibility: International Perspectives*. New York: Palgrave MacMillan.

Arbeitskreis Externe und Interne Überwachung der Unternehmung der Schmalenbach-Gesellschaft für Betriebswirtschaft (2016). Die Zukunft des Deutschen Corporate Governance Kodex. *Der Betriebswirt*, 7/2016, 395–401.

Armour, J. H., & Cheffins, B. R. (2011). Origins of "Offensive" Shareholder Activism in the United States. In J. Koppell (Ed.), *Origins of Shareholder Advocacy* (pp. 253–276). Basingstoke: Palgrave MacMillan.

Bainbridge, S. M. (2016). *Corporate Governance After the Financial Crisis*. Oxford: Oxford University Press.

Balsmeier, B., & Czarnitzki, D. (2012). *Ownership concentration, institutional development and firm performance in Central and Eastern Europe*. Mannheim: Centre for European Economic Research (ZEW).

Bauer, R., Gunster, N., & Otten, R. (2004). Empirical evidence on corporate governance in Europe: The effect on stock returns, firm value, and performance. *Journal of Asset Management, 5*, 91–104.

Baum, C. F. (2006). *Modern Econometrics Using Stata*. College Station: Stata Press.

Baysinger, D., Butler, H. N. (1985). Corporate governance and the board of directors: Performance effects of change in board composition. *Journal of Law, Economics and Organization*, 1, 101–24.

Bebchuk, L., & Weisbach, M. (2010). The State of Corporate Governance Research', *Review of Financial Studies*, 23, 939–961.

Berghe, A. (2012). *International Standardisation of Good Corporate Governance: Best Practices for the Board of Directors* (2nd ed.). Dodrecht, Springer Science.

Berghe, L & De Ridder, L 1999, *International Standardisation of Good Corporate Governance: Best Practices for the Board of Directors*, Wiesbaden: Springer

Berle, A., & Means, G. C. (1932). *The Modern Corporation and Private Property*. New York: Macmillan.

Bermig, A., & Frick, B. (2010a). *Mitbestimmung und Unternehmens-performance: Der Einfluss von Arbeitnehmervertretern im Aufsichtsrat auf den Unternehmenswert*. Paderborn: Management Department University of Paderborn.

Bermig, A., & Frick, B. (2010b). *Board Size, Board Composition and Firm Performance: Empirical Evidence from Germany*. Paderborn: Department of Management University of Paderborn.

Bermig, A., & Frick, B. (2010c). *Cash Holdings, Board Size, and Board Composition: Empirical Evidence from Germany*. Paderborn: Department of Management University of Paderborn.

Bermig, A., & Frick, B. (2010d). Who is the Better Monitor? The Impact of Female Board Directors, Board Composition, and Board Sizeon Earnings Management. Paderborn: Department of Management, University of Paderborn.

Berndt, M. (2002). G*lobal Differences in Corporate Governance Systems: Theory and Implications for Reforms*. Wiesbaden: DUV.

Berrar, C. (2001): *Die Entwicklung der Corporate Governance in Deutschland im internationalen Vergleich* (Dissertationsschrift an der Ludwig-Maximilians-Universität München). Baden-Baden: Nomos.

Beschorner, T. (2014). Beyond Risk Management, Toward Ethics: Institutional and Evolutionary Perspective. In C. Luetge & J. Jauernig (Eds.), *Business Ethics and Risk Management* (pp. 99–110). Dordrecht: Springer.

Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance*, 14, 257–273.

Bickenbach, F., Kumkar, L., & Soltwedel, R. (2002). Antitrust and Regulation: The View of New Institutional Economics. In. K. F. Zimmermann (Ed.), Frontiers in Economics (pp. 185–234). Berlin: Springer.

Black, B., Jang, H., & Kim, W. (2006). Predicting firms' corporate governance choices: Evidence from Korea. *Journal of Corporate Finance*, *12*(3), 660–691.

Blair, M. M. (1995): *Ownership and control*. Washington, DC: Brookings Institute.

Blaug, M., & Towse, R. (2011). Cultural Entrepreurship. In R. Towse (Ed.), *A Handbook of Cultural Economics* (pp. 153–157). Cheltenham: Edward Elgar.

Bloomberg (2015). *German Government Bonds*. Retrieved from http://www.bloomberg.com/markets/rates-bonds/government-bonds/germany.

Blue Ribbon Committee 1999, Report and Recommendations of Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committee.

Boland. L. A. (2014). *Methodology for a New Microeconomics: The Critical Foundation* (3rd ed.). New York: Routledge.

Bontis, N., Chua, W.C.K., & Richardson, S. (2000). Intellectual capital and business performance in Malaysian industries. *Journal of Intellectual Capital*, *1*(1), 85–100.

Boorsma, P. B., Aarts, K., & Steenge, A. E. (1997). *Public Priority Setting: Rules and Costs*. Amsterdam: Springer.

Borckman, P., Lee, H. S., & Salas, J. M. (2016). Determinants of CEO compensation: Generalist–specialist versus insider–outsider attributes. *Journal of Corporate Finance*, 39, 53–77.

Boreiko, D., & Murgia, M. (2016). Corporate Governance and Restructuring Through Spin-Offs: European Evidence. In T. Azarmi & W. Amann (Eds.), *The Financial Crisis: Implications for Research and Teaching* (pp. 7–47). Dordrecht: Springer.

Boyd, B. K. (1995). CEO Duality and Firm Performance: A Contingency Model', *Strategic Management Journal*, 16, 301–312.

Bratton, W. (2012). Agency theory and incentive compensation. In R. S. Thomas, J. S. Beasley, & J. G. Hill (Eds.), Research Handbook on Executive Pay (pp. 101–122). Northampton: Edward Elgar.

Brenes, E. R., Madrigal, K., & Requena, B. (2011). Corporate governance and family business performance. *Journal of Business Research*, 64, 280–285.

Breuer, M. S. D. (2010). *Socio-Cognitive Dynamics in Strategic Processes*. Köln: EUL.

Brickley, J. A., & James, C. M. (1987). The Takeover Market, Corporate Board Composition and Ownership Structure: The Case of Banking. *Journal of Law and Economics*, 30, 161–180.

Brickley, J. A., Coles, J. L., & Terry, R. L. (1994). Outside Directors & the Adoption of Poison Pills. *Journal of Financial Economics*, 35, 371–390.

Brigham, E., & Ehrhardt, M. (2014). *Financial Management: Theory & Practice*. Mason: South-Western.

Brooking, A. (1997). *Intellectual Capital*. London: Thomson.

Brown, C. C. (1976). *Putting the Corporate Board to Work*. New York: Free Press.

Brown, L. D., & Caylor, M. L. (2006). Corporate governance and firm valuation. *Journal of Accounting and Public Policy*, 25, 409–430.

Butter, F. A. G. (2012). *Managing Transaction Costs in the Era of Globalization*. Cheltenham: Edward Elgar.

Byrd, J., & Hickman, K. (1992). Do Outside Directors Monitor Managers? Evidence from Tender Offer Bids. *Journal of Financial Economics*, 32, 195–221.

Cadbury Report (1992). *The Financial Aspects of Corporate Governance*. Retrieved from http://www.uksa.org.uk/files/press_releases/19920727_uksa_on_cadbury.pdf

Callahan, W. T., Millar, J. A., & Schulman, C. (2003). An analysis of the effect of management participation in director selection on the long-term performance of the firm. *Journal of Corporate Finance*, *9*(2), 169–181.

Campos, C., Newell, R. E., & Wilson, G. (2002). *Corporate governance develops in emerging markets*. New York: McKinsey.

Cannella, A. A., & Holcomb, T. R. (2005). A Multi-Level Analysis of the Upper-Echelons Model. In F. Dansereau & F. J. Yammarino (Eds.), *Multi-Level Issues in Strategy and Methods* (vol. 4, pp.195–237). Amsterdam: Elsevier.

Carline, N. F., Linn, S. C., & Yadav, P. K. (2009). Operating performance changes associated with corporate mergers and the role of corporate governance. *Journal of Banking, & Finance*, 33, 1829–1841.

Carroll, A., & Buchholtz, A. (2009). *Business and Society: Ethics and Stakeholder Management*. Mason: South-Western.

Castaner, X., & Kavadis, N. (2013). Does Good Governance prevent bas strategy? A study of corporate governance, financial diversification, and value creation by French corporations, 2000–2006. *Strategic Management Journal*, 34, 863–876.

Chaganti, R. S., Mahajan, V., & Sharma, S. (1985). Corporate board size, composition and corporate failures in retailing industry', *Journal of Management Studies*, *22*(4), 400–417.

Chakravarti, A. (2012*). Institutions, Economic Performance and the Visible Hand: Theory and Evidence*. Cheltenham: Edward Elgar.

Cheng, S. (2008). Board size and the variability of corporate performance. *Journal of Financial Economics*, *87*(1), 157–176.

Chhaochharia, V., & Grinstein, Y. (2007). Corporate Governance and Firm Value: The Impact of the 2002 Governance Rules. *The Journal of Finance*, *62*(4),1789–1825.

Chhotray, V., & Stoker, G. (2009). *Governance Theory and Practice: A Cross-Disciplinary Approach*. Basingstoke: Palgrave MacMillan.

Chin, T., Vos, E. D., & Case, Y. Q. (2004). Levels of ownership structure, Board composition and Board size seem unimportant in New Zealand. *Corporate Ownership & Control*, *2*(1), 119–128.

Chung, K. H, Wright, P., & Kedia, B. B. (2003). Corporate Governance, & Market Valuation of Capital, & R, & D Investment. *Review of Financial Economics*, 12, 161–172.

CISMarket (2015). *S&P 500 Financial Strength Information*. Retrieved from http://csimarket.com/Industry/industry_Financial_Strength_Ratios.php?&hist=1.

Clarke, F., & Chanlat, J. F. (2009). A New World Disorder? The Recurring Crises in Anglo-American Corporate Governance and the Increasing Impact on European Economies and Institutions. In T. Clarke & J. F. Chanlat (Eds.), *European Corporate Governance: Readings and Perspectives* (pp. 1–35). New York: Routledge.

Clarke, T. (2007). *International Corporate Governance: A Comparative Approach*. Milton Park: Routledge.

Coad, A., & Hölzl, W. (2010). *Firm Growth: Empirical Analysis* (Paper on Economics and Evolution #1002. Jena: Max Plank Institute of Economics.

Coase, R. H. (1937). The Nature of the Firm. Economica, *4*(16), 386–405.

Coase, R. H. (1988) [1937]. *The Firm, the Market, and the Law*. Chicago: University of Chicago Press.

Coase, R. H. (1990). *The Firm, the Market, and the Law*. Chicago: University of Chicago Press.

Coleman, AK & Biekpe, N 2007). On the determinants of board size & its composition: additional evidence from Ghana. *Journal of Accounting & Organizational Change*, *3*(1), 68–77.

Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fit all? *Journal of Financial Economics*, *87*(2), 329–356.

Conger, J., Finegold, D. & Lawler, E. (1998). Appraising Boardroom Performance. *Harvard Business Review*, 76, 136–148.

Conheady, B., McIlkenny, P., Opong, K. K., & Pignatel, I. (2015). Board effectiveness and firm performance of Canadian listed firms. *The British Accounting Review*, *47*(3), 290–303.

Conyon, M. J., & Schwalbach, J. (2009). Corporate Governance, Executive Pay and Performance in Europe. In J. Carpenter, & D. Yermack (Eds.), *Executive Compensation and Shareholder Value: Theory and Evidence* (pp. 13–34). Dordrecht: Springer Science.

Crowther, D., & Seifi, S. (2011). Corporate Governance and International Business. Copenhagen: Ventus.

Dahya, J., Lonie A. A., & Power, D. M. (1996). The Case for Separating the Roles of Chairman and CEO: An Analysis of Stock Market and Accounting Data', *Corporate Governance–An International Review*, *4*(2), 71–77.

Daidj, N. (2016). *Strategy, Structure and Corporate Governance: Expressing Inter-Firm Networks and Group-Affiliated Companies*. Milton Park: Routledge.

Daily, C. M. & Dalton, D. R. (1993). Board of Directors Leadership and Structure: Control and Performance Implications', *Entrepreneurship: Theory and Practice*, 7, 65–82.

Daines, R., Gow, I., & Larcker, D. (2008). Rating the ratings: How good are commercial governance ratings? *Journal of Financial Economics* (JFE), *98*(3), 439–461.

Dalton, D. R, Daily, C. M., Certo, S. T., & Roengpitya, R. (1998). Meta-Analyses of Financial Performance and Equity: Fusion or Confusion? *Strategic Management Journal, 19*, 269–290.

Dalton, D. R., Daily, C. M., Ellstrand, A. E., & Johnson, J. L. (1998). Number of directors and financial performance: A meta-analysis. *Academy of Management Journal, 42*(6), 674–686.

Davies, A. (2011). *The Globalisation of Corporate Governance: The Challenge of Clashing Cultures*. Farnham: Gower.

Delmar, F., 1997. Measuring growth: methodological considerations and empirical results. In R. Donckels, & A. Miettinen (Eds.), *Entrepreneurship and SME Research: On its Way to the Next Millennium* (pp. 199–216). Aldershot: Ashgate.

Delmar, F., Davidsson, P., & Gartner, W. B. (2003). Arriving at the High-Growth Firm. *Journal of Business Venturing, 18*(2), 189–216.

Demb, A., & Neubauer, F. F. (1992). *The Corporate Board*. New York: Oxford University Press.

Demsetz, H., & B. Villalonga (2001). Ownership Structure and Corporate Performance. *Journal of Corporate Finance*, 7, 209–233.

Denis, D., Diane, K., & Sarin, S. (1997). Agency problems, Equity ownership and corporate diversification. *Journal of Finance, 52*(1), 135–160.

Dharmapala, D., & Khanna, V. (2013). Corporate Governance, Enforcement, and Firm Value: Evidence from India. Journal of Law, Economics and Organization, Oxford University Press, *29*(5), 1056–1084.

Dietl, H. (2003). *Capital Markets and Corporate Governance in Japan, Germany and the United States*. London: Routledge.

Dignam, A., Galanis, M. (2016). *The Globalization of Corporate Governance* (2nd ed.). Milton Park: Routledge.

Dine, J. & Koutsias, M. (2013). *The Nature of Corporate Governance*. Cheltenham: Edward Elgar.

Donaldson, L., & Davis, J. H. (1991). Stewardship Theory or Agency Theory: CEO governance and shareholder returns. *Australian Journal of Management*, *16*(1). 49–65.

Drucker, P. (1951). *The New Society. The Anatomy of the Industrial Order*. London: William Heinemann.

Drucker, P. (1993) *Management: Tasks, Responsibilities, Practices.* New York: Harper & Row.

Dunn, M. (2013). *Inside the Capitalist Firm: An Evolutionary Theory of the Principal-Agent-Relation*. Potsdam: Potsdam University Press.

Ebeling, P.-C. (2015). *Corporate Governance kapitalmarktorientierter Immobiliengesellschaften* (Schriften zu Immobilienökonomie und Immobilienrecht. Regensburg: International Real Estate Business School.

Ees, H., Laan, G., & Postma, T. (2008). Effective board behavior in The Netherlands. *European Management Journal*, *26*(2), 84–93.

Eisenberg, T., Sundgren, S., & Wells, M. (1998). Larger Board Size and Decreasing Firm Value in Small Firms. *Journal of Financial Economics*, 48, 35–54.

Engelen, P. J., Berg, A., & Laan, G. (2012). Board Diversity as a Shield during the Financial Crisis. In S. Boubaker, B. D. Nguyen (Eds.), *Corporate Governance: Recent Developments and New Trends* (pp. 259–287). Dordrecht: Springer.

Englander, E., & Kaufmann, A. (2009). Executive Compensation, Political Economy, and Managerial Control: The Transformation of Managerial Incentive Structures and Ideology, 1950-2000. In T. Clarke & J. Chanlat (Eds.), *European Corporate Governance: Readings and Perspectives* (pp. 340–359). New York: Routledge.

Enkhzaya, C. (2006). *Impact of Institutions on Lending: Informal Constraints and Enforcement of Bank Regulation*. Wiesbaden: DUV.

Erdogan, S. (2016). The Effect of Capital Structure on Profitability: An Empirical Analysis. In U. Akkucuk (Ed.), *Research for Developing Sustainable Value in Economics, Finance, and Marketing* (pp. 307–323). Boston: Cengage Business Science.

Ertuna, Ö., & Ertuna, B. (2016). Evolution of Corporate Governance and Potential Contribution of Developing Countries. In G. Aras & D. Crowther (Eds.), Global Perspectives on Corporate Governance and CSR (pp. 163–186). Milton Park: Routledge.

Evans, J., Evans, R., & Loh, S. (2002). Corporate Governance and Declining Firm Performance. *International Journal of Business Studies*, *10*(1), 1–18.

Fama, E. F. (1980). Agency problems and the theory of the firm. *Journal of Political Economy*, 288–307.

Fama, E. F., & Jensen, M. C. (1983). Separation of Ownership and Control. *Journal of Law and Economics*, 26, 301–325.

Felo, A. J. (2011). Corporate Governance and Business Ethics. In A. Brink (Ed.), *Corporate Governance and Business Ethics* (pp. 281-296). Dordrecht: Springer.

Fich, E. M.´, & Shivdasani, A. (2006). Are busy boards effective monitors? *Journal of Finance*, 2006, *61*(2), 689–724.

Filatotchev, I., Jackson, G., & Nakajima, C. (2013). Corporate governance and national institutions: A review and emerging research agenda. *Asia Pacific Journal of Management*, 30, 965–986.

Finkelstein, S., & D'aveni, R. A. (1994). CEO duality as a double-edged sword: How boards of directors balance entrenchment avoidance. *Academy of Management Journal*, *37*(5), 1079–1109.

Firth, M. A., & Rui, O. M. (2012). Does One Size Fit All? A Study of the Simultaneous Relations Among Ownership, Corporate Governance Mechanisms, and the Financial Performance of Firms in China. In S. Boubaker, B. D. Nguyen, & D. K. Nguyen, (eds.). *Corporate Governance: Recent Developments and New Trends (*pp. 29–58). Heidelberg: Springer.

Foss, N. J. & Knudsen, T. (2003). The resource-based tangle: Towards a sustainable explanation of competitive advantage. *Managerial and Decision Economics*, 24, 291–307.

Francis, B. B., & Hasan, I., & Wu, Q. (2012). Do corporate boards matter during the current financial crisis? *Review of Financial Economics*, *21*(2), 39–52.

Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., Colle, S. (2010). *Stakeholder Theory: The State of the Art.* Cambridge: Cambridge University Press.

Frees, E. W. (2004). *Longitudinal and Panel Data: Analysis and Applications for the Social Sciences*. Cambridge: Cambridge University Press.

Freiling, J., Gersch, M. & Goeke, C. (2008). On the path toward a Competence-based Theory of the Firm. *Organization Studies*, 29, 1143–1164.

Frey, C. B. (2013). *Intellectual Property Rights and the Financing of Technological Innovation: Public Policy and the Efficiency of Capital Markets*. Cheltenham: Edward Elgar.

Friedman, M (1970). The Social Responsibility of Business is to Increase its Profits, *The New York Times Magazine* (23 September 1970), 32–33.

Furubotn, E. G., & Richter, R. (2000). *Institutions and Economic Theory: The Contribution of the New Institutional Economics*. Ann Arbor: University of Michigan Press.

Fuzi, S. F. S., Halim, S. A. A., & Julizaerma, M.K (2016). Board Independence and Firm Performance. *Procedia Economics and Finance*, 37, 460–465.

Gani, L., & Jermias, J. (2006). Investigating the effect of board independence on performance across different strategies. *The International Journal of Accounting*, *41*(5), 295–314.

Geiersbach, K. (2011). *Der Beitrag Der Internen Revision Zur Corporate Governance.* Wiesbaden: Gabler.

German Government Committee (2015). German Corporate Governance Code. German Government: Berlin.

Gill, A. (2003). *CLSA Watch: Corporate Governance in the Emerging Markets*. New York: CLSA CG.

Girasa, R. (2013). *Corporate Governance and Finance Law*. New York: Palgrave MacMillan.

Giroud, X., & Mueller, H. M. (2010). Does corporate governance matter in competitive industries? *Journal of Financial Economics,* 95, 312–331.

Goergen, M., Mallin, C., Mitleton-Kelly, E., Al-Hawamdeh, A., & Hse-Yu Chiu, I. (2010). *Corporate Governance and Complexity Theory*. Cheltenham: Edward Elgar.

Goldman, A., & Barlev, B. (1974). The auditor-firm conflict of interests: its implications for independence. *The Accounting Review,* 2, 707–718.

Gomez, P. E., & Moore, R. A. (2009). *Board Members and Management Consultants: Redefining the Boundaries of Consulting and Corporate Governance*. Charlotte: University of Alabama.

Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, *116*(1), 107-–.

Goodstein, J., Gautum, K., & Boeker, W. (1994). The Effect of Board Size and Diversity on Strategic Change. *Strategic Management Journal*, 15, 241–250.

Gordon, C. E. (2016). *Behavioural Approaches to Corporate Governance*. Milton Park: Routledge.

Grace, M., Ireland, A., & Dunstan, K, (1995). Board Composition, Non-Executive Directors' Characteristics and Corporate Financial Performance. *Asia-Pacific Journal of Accounting*, *2*(1), 121–137.

Grahama, J. R., Leary, M. T., & Roberts, M. R. (2016). *A century of capital structure: The leveraging of corporate America*. Journal of Financial Economics, *118*(3), 658–683.

Grant, M. F. (1991). The resource-based Theory of Competitive Advantage: Implications for Strategy formulation. *California Management Review*, 33, 114–135.

Green, O. (2000). *Corporate Governance: Great Expectations, in: Corporate Governance & Corporate Control*. In S. Sheikh & W. Rees (Eds.), *Corporate Governance & Corporate Control* (pp. 143–160). London: Cavendish.

Greenfield, K. (2006). *The Failure of Corporate Law: Fundamental Flaws and Progressive Possibilities*. Chicago: University of Chicago Press.

Gregory, H. J., & Simms, M. E. (1999). Corporate Governance: What it is and why it matters? 9th International Anti-Corruption Conference, 10–15 October 1999, Durban, South Africa.

Grigat, F. (2010). Die Nacht, in der alle Kühe schwarz sind. Zur Kritik des Kompetenz-Begriffs und des deutschen Qualifikationsrahmens. *Forschung & Lehre*, *10*(4), 250–252.

Groß, K. (2007). *Equity Ownership and Performance: An Empirical Study of German Traded Companies*. Wiesbaden: Physica/Springer.

Grove, H., Patelli, L., Victoravich, L. M., & Xu, P. (2011). Corporate Governance and Performance in the Wake of the Financial Crisis: Evidence from U.S. Commercial Banks. *Corporate Governance*, *19*(5), 418–436.

Gruber, M., Heinemann, F., Brettel, M., & Hungeling, S. (2010). Configurations of resources and capabilities and their performance implications: an exploratory study on technology ventures. *Strategic Management Journal*, *31*(12), 1337–1356.

Guener, A B., Malmendier, U., & Tate, G. (2008). Financial Expertise of Directors. *Journal of Financial Economics*, 88, 323–354.

Guest, P. (2009). The impact of board size on firm performance: evidence from the UK. *European Journal of Finance*, *15*(4), 385–404.

Gupta, K., Chandrasekhar, K., & Tourani-Rad, A, (2013). Is corporate governance relevant during the financial crisis? *Journal of International Financial Markets, Institutions and Money*, 23, 85–110.

Hall, J. (2008). *Accounting Information Systems*. Mason: South-Western.

Hallock, K. F. (1999). Dual Agency: Corporate Boards with Reciprocally Interlocking Relationships. J. Carpenter & D. Yermack (Eds.), *Executive Compensation and Shareholder Value: Theory and Evidence* (pp. 55–76). Dordrecht: Springer Science.

Hamelin, A. (2013). Influence of family ownership on small business growth. Evidence from French SMEs. *Small Business Economics*, *41*(3), 563–579.

Haniffa, R. M., & Cooke, T. E. (2002). Culture, Corporate Governance and Disclosure in Malaysian Corporations. *Abacus*, 38, 317–349.

Hart, O. (1995): Corporate Governance: Some Theory and Implications. *Economic Journal*, 105, 678–689.

Hau, H., & Thum, M. (2010). *Subprime Crisis and Board (In-)Competence: Private vs. Public Banks in Germany*. Fontainebleau: INSEAD.

Hauswirth, I. A. (2006). *Effective and Efficient Organisations?: Government Export Promotion in Germany and the UK from Organisational Economics Perspective*. Heidelberg: Physica,

Haynes, K. T., & Hillman, A. (2010). The Effect of Board Capital and CEO Power on Strategic Change. *Strategic Management Journal*, *31*(11), 1145–1163.

Hayton, J.C. (2005). Competing in the new economy: The effect of intellectual capital on corporate entrepreneurship in high-technology new ventures. *R&D Management*, *35*(2), 137–154.

Henry, T. (2010). Does Equity Compensation Induce Executives to Maximize Firm Value or Their Own Personal Wealth? In Cheryl R. Lehman (Ed.), *Ethics, Equity, and Regulation*: *Advances in Public Interest Accounting, Volume 15* (pp.111–139). Bingley: Emerald.

Hermalin, B. E., & Weisbach, M. S. (2001) *Boards of Directors as an endogenously determined institution: A survey of economic literature* (*NBER Working Paper*, No.8161). Washington: National Bureau of Economic Research.

Hermalin, B. E., & Weisbach, M. S. (2012). Information disclosure and corporate governance. *Journal of Finance*, 67, 195–234.

Hermalin, B., & Weisbach, M. S. (1991). The effects of board composition & direct incentives on firm performance. *Financial Management*, *20*(4), 101–112.

Higgs, D. (2003). *Review of the Role and Effectiveness of Non-Executive Directors (Higgs Report)*. London: Department of Trade and Industry.

Hlaváček, J., & Hlaváček, M. (2013). Generalized Microeconomics. Prague: University of Prague.

Holden, N., & Glisby, M. (2010). *Creating Knowledge Advantage: The Tacit Dimensions of International Competition and Cooperation*. Copenhagen: Copenhagen Business School Press.

Hong, P. T., Plowman, D., & Hancock, P. (2007). Intellectual capital and financial returns of companies. *Journal of Intellectual Capital*, *8*(1), 76–95.

Hopt, K. J. (2013). Some Corporate Governance Thoughts from Europe. In P. Davies, P. L. Davies, K. J. Hopt, R. Nowak & G. Solinge (Eds.), *Corporate Boards in European Law: A Comparative Analysis* (pp. 531–562). Oxford: Oxford University Press.

Horrigan, B. (2012). *Corporate Social Responsibility in the 21st Century: Debates, Models and Across Government, Law and Business*. Cheltenham: Edward Elgar.

Hossain, M., Cahan, S. F., & Adams, M. B. (2000). The investment opportunity set & the voluntary use of outside directors: new zeal & evidence. *Accounting & Business Research*, *30*(4), 263–273.

Houston, R., & Ferris, S. P. (2015). Corporate Political Connections and the IPO Process: The Benefits of Politically Connected Board Members and Managers. In K. John, A. Makhija & S. P. Ferris (Eds.), I*nternational Corporate Governance: Advances in Financial Economics Vol. 18* (pp. 125–164). Bingley: Emerald.

Hsiao, C. (2003). *Analysis of Panel Data*. Cambridge: Cambridge University Press.

Hutchinson, M. (2002). An Analysis of the Association between Firms' Investment Opportunities, Board Composition, and Firm Performance. *Asia Pacific Journal of Accounting and Economics*, 9, 17–39.

J.P. Morgan (2014). Creating Value through Best-In-Class Capital Allocation. New York: J.P Morgan.

James, D. (1933). The Modern Corporation and Private Property, by Adolfe A. Berle Jr. and Gardiner C. Means. *Indiana Law Journal, 8*(8), 514–516.

Janocha, M. (2014). *Vergütung mittels Bonusbanken: Eine agency-theoretische Perspektive.*Wiesbaden: Gabler.

Jashapara, A. (2004) *Knowledge Management: An Integrated Approach*. London: Financial Times Prentice.

Jaskiewicz, P., & Klein, S. (2007). The impact of goal alignment on board composition and board size in family businesses. *Journal of Business Research, 60*(10), 1080–1089

Jensen, M. (1986). The Agency Costs of Free Cash Flow. *American Economic Review*, 76, 326–329.

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems, *Journal of Finance, 48*(3), 831–880.

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.

Jermias, J., & Gani, L. (2014). The impact of board capital and board characteristics on firm performance. *The British Accounting Review*, *46*(2), 135–153.

Johnston, A. (2009). *EC Regulation of Corporate Governance*. Cambridge: Cambridge University Press.

Kane D. G. (2002). The Relationship between Changes in Fixed Plant Investment and the Likelihood of Emergence from Corporate Financial Distress. *Review of Quantitative Finance and Accounting*, 18, 259–272.

Kasper, W., Streit, M. E., & Boettke, P. J. (2012). *Institutional Economics: Property, Competition, Policies*. Cheltenham: Edward Elgar.

Kaspereit, T., Lopatta, K., Zimmermann, J. (2015). Does compliance with the German Corporate Governance Code pay off?: An investigation of the implied cost of capital. *Journal of Risk Finance*, *16*(3), 344–376.

Keasey, K., & Wright, M. (1997). *Corporate Governance, Responsibility, Risks and remuneration*. Chisester: Wiley.

Kesner, I., & Johnson, R. (1990). An investigation of the relationship between board composition and stockholder suits. *Strategic Management Journal*, 11, 327–336.

Khalil, E. L. (1996). After the Special Nature of the Firm: Beyond the Critics of Orthodox Neoclassical Economics. In J. Groenewegen (Ed.), *Transaction Cost Economics and Beyond* (pp. 289–308). Boston: Kluwer.

Klapper, L. F, & Love, I. (2002). *Corporate Governance, Investor Protection, and Performance in Emerging Markets* (World Bank Policy Research Working Paper 2818). New York: World Bank.

Klein, P. A. (2006). *Economics Confronts the Economy*: Cheltenham: Edward Elgar.

Knoll, L., Knoesel, J., & Probst, U. (1997). Aufsichtsratsvergütungen in Deutschland: Empirische Befunde. *Zeitschrift für betriebswirtschaftliche Forschung*, 49, 236–254.

Koppell, J. (2011). Shareholder Advocacy and the Development of the Corporation: The Timeless Dilemmas of an Age-old Solution. In J. Koppell (Ed.), *Origins of Shareholder Advocacy* (pp. 1–28). Basingstoke: Palgrave MacMillan.

Kothari, J., & Barone, E. (2006). *Financial Accounting: An International Approach*. Harlow: Pearson.

Kräkel, M. (2004). *Organisation und Management* (2nd ed.). Tübingen: Mohr Siebeck.

Krivogorsky, V. (2006). Ownership, board structure, & performance in continental Europe. in *The International Journal of Accounting*, *41*(7), 176–197.

Krzeminska, A. (2008). Determinants and Management of Make-and-Buy: An Extension to Transaction Cost Economics. Wiesbaden: Gabler.

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

Langnan, C., Steven, L., & Weibin, L, (2007). Corporate governance and corporate performance: some evidence from newly listed firms on Chinese stock markets. *International Journal of Accounting, Auditing and Performance Evaluation*, 4(2), 183–197.

Larcker, D., Richardson, S., & Tuna, I. (2007). Corporate governance, accounting outcomes, and organizational performance. *The Accounting Review*, 82, 963–1008.

Le, S., Walters, B. A., & Kroll, M. (2006). The moderating effects of external monitors on the relationship between R&D spending and firm performance. *Journal of Business Research*, 59, 278–287.

Lefort, F., & Urzúa, F. (2008). Board independence, firm performance and ownership concentration: Evidence from Chile. *Journal of Business Research*, *61*(6), 615–622.

Leitner, S. (2012). *Information Quality and Management Accounting: A Simulation Analysis of Biases in Costing Systems*. Heidelberg: Springer.

Liang, M. (2014). *The Microeconomic Growth*. Heidelberg: Springer.

Lipton, M., & Lorsch, J, (1992). A Modest Proposal for Improved Corporate Governance', *Business Lawyer*, 48, 59–77.

Lutz, D., &. Mimbi, P. (2011). *Shareholder Value and the Common Good*. Nairobi: Strathmore University.

Lütz, S. (2009). The Finance Sector in Transition: A Motor for Economic Reform? In K. Dyson & S. Padgett (Eds.), *The Politics of Economic Reform in Germany: Global, Rhineland or Hybrid Capitalism* (pp. 26–42). London: Routledge.

Mace, M. (1986). *Directors, Myth, and Reality*. Boston: Harvard Business School Press.

MacKenzie, C. (2007). Boards, Incentives and Corporate Social Responsibility: the case for a change of emphasis. *Corporate Governance – An International Review*, *15*(5), 935–943.

MacNeil, I. R. (1974). Restatement (Second) of Contracts and Presentation. Virginia Law Review, 60, 589–610.

Mak, Y., & Kusnadi, Y. (2005). Size really matters: Further evidence on the negative relationship between board size and firm value. *Pacific-Basin Finance Journal*, 13, 301–318.

Malla, P. B. (2010). *Corporate Governance: Concept, Evolution and History*. London: Routledge.

Mansell, S. F. (2013). *Capitalism, Corporations and the Social Contract: A Critique of Stakeholder Theory*. Cambridge: Cambridge University Press.

Mäntysaari, P. (2005). *Comparative Corporate Governance: Shareholders as a Rule-Maker*. Berlin: Springer.

Mäntysaari, P. (2012). *Organising the Firm: Theories of Commercial Law, Corporate Governance and Corporate Law*. Berlin: Springer.

Marr, B. (2008*). Intangible Asset Measurement*. Kuala Lumpur: Accountants Today.

Massari, M., Gianfrate, G., & Zanetti, L. (2016). *Corporate Valuation: Measuring the Value of Companies in Turbulent Times*. Hoboken: Wiley.

Massey, C. R. (2010). Property (7th ed.). New York: Wolters Kluwer.

Mawson, P. (2002). *Measuring Economic Growth* (New Zealand Treasury Working Paper 2/14). Wellington: New Zealand Treasury.

Mayo, A. (2001). *The Human Value of the Enterprise: Valuing People as Assets – Monitoring, Measuring, Managing*. London: Brealey.

McCahery, J. A., & Vermeulen, E. P. M. (2008). *Corporate Governance of Non-Listed Companies*. Oxford: Oxford University Press.

McCahery, J. A., & Vermeulen, E. P. M. (2013). *Understanding the Board of Directors after the Financial Crisis* (Law Working Paper No. 229/2013). Brussels: European Corporate Governance Institute.

McKinsey (2000) *Investor opinion survey on corporate governance*. Retrieved from www.mckinsey.com/governance [August 12, 2015].

McKinsey (2002). *Global investor opinion survey: Key Findings*. Retrieved from www.mckinsey.com/governance [August 12, 2015].

McMullan, M., Endacoot, R., Gray, M., Jasper, M., Miller, C., Scholes, J., & Webb, C. (2003). Portfolios and assessment of competences: a review of the literature. *Journal of Advanced Nursing*, *41*(3), 283–294.

McMullen, D. A., Raghunandan, K. (1996). Enhancing audit committee effectiveness. *Journal of Accountancy,* 182, 79–81.

Meier, H. H., & Meier, N. C. (2013). Corporate Governance: An Examination of U.S. and European Models. *Corporate Board: Role, Duties & Composition*, *9*(2), 6–11.

Mitchell, L. E. (1995). *Progressive Corporate Law*. New York: Westview Press.

Mitchell, L. F. (2010). The Trouble with Boards. In F. Scott Kieff & T. A. Paredes (Eds.), *Perspectives on Corporate Governance* (pp. 17–61). Cambridge: Cambridge University Press.

Mizruchi, M. (2004). Berle and Means revisited: The governance and power of large U.S. corporations. Theory and Society, 33, 579–617.

Monks, R. A. G., & Minow, N. (2011). *Corporate Governance* (5th ed.). Chichester: Wiley.

Moore, D. R., Cheng, M. I., & Dainty, A. R. J. (2002). Competence, competency and competencies: performance assessment in organisations. *Work Study*, *51*(6), 314–319.

Morck, R. K., Percy, M., Tian, G. Y., & Yeung, B. (2007). The Rise and Fall of the Widely Held Firm. R. K. Morck (Ed.), *A History of Corporate Governance around the World* (pp. 65–148). Chicago: University of Chicago Press.

Morck, R., & Yang, F. (2011). The Rise and Fall of the Bank Model: Limiting Shareholder Influence to Attract Capital. In. In J. Koppell (Ed.), *Origins of Shareholder Advocacy* (pp. 187–213). Basingstoke: Palgrave MacMillan.

Morgan, S. L., & Winship, C. (2015). *Counterfactuals and Causal Inference: Methods and Principles for Social Research*. Cambridge: Cambridge University Press.

Morningstar (2016). *Data Definitions*. Chicago: Morningstar.

Morris, M. H., Williams, R. W., Allen, J. A., & Avila, R. A. (1997). Correlates of success in family business transitions. *Journal of Business Venturing*, 12, 385–401.

Mustaghni, B. (2012). *Einfluss von Corporate Governance auf den Erfolg von Unternehmen: eine Untersuchung börsennotierter Unternehmen in Deutschland* (Europäische Hochschulschriften). Bern: Lang.

Muth, M., & Donaldson, L. (1998). Stewardship Theory and Board Structure: A contingency approach. *Corporate Governance: An International Review*, *6*(1), 5–29.

Myers, J. L., Well, A. D., & Lorch, R. F. (2010). Research Design and Statistical Analysis (3rd ed.). New York: Routledge.

Nakano, M., & Nguyen, P. (2012). Board Size and Corporate Risk Taking: Further Evidence from Japan. *Corporate Governance-An International Review*, *20*(4), 369–387.

Nicholson, G. J., & Kiel, G. C. (2007). Can Directors Impact Performance? A case-based test of three theories of corporate governance. *Corporate Governance*, *15*(4), 585–608.

Nielsen, S. (2009). Why do top management teams look the way they do? A multilevel exploration of the antecedents of TMT heterogeneity. *Strategic Organization*, *7*(3), 277–305

Odenius, J. (2008). *Germany's Corporate Governance Reforms* (IMF Working Paper WP/08/179). New York: International Monetary Fund.

OECD (2006). *OECD Principles of Corporate Governance*. Paris: OECD.

OECD (2008). *Glossary of Statistical Terms*. Paris: OECD, pp. 227, 594; World Bank (2008). *World Development Indicators*. Washington: World Bank.

OECD (2010) *Corporate Governance Accountability and Transparency: A Guide for State Ownership*, Brussels: OECD.

OECD (2011). *Corporate Governance Board Practices Incentives and Governing Risks*. Paris: OECD.

OECD (2015). *OECD Corporate Governance Factbook 2015*. Paris: OECD Publishing.

OECD (2015): *G20/OECD Principles of Corporate Governance: OECD Report to G20 Finance Ministers and Central Bank Governors*. Paris: OECD.

Omran, M. (2009). Post-privatization corporate governance and firm performance: The role of private ownership concentration, identity and board composition. *Journal of Comparative Economics*, *37*(4), 658–673.

Ozawa, T. (2005). *Institutions, Industrial Upgrading, and Economic Performance in Japan*. Cheltenham: Edward Elgar.

Pacces, A. M. (2012). *Rethinking Corporate Governance: The Law and Economics of Control Powers*. Milton Park: Routledge.

Papakonstantinou, F. (2008). *Boards of Directors: The Value of Industry Experience.* Princeton University: Mimeo.

Park, Y. W., & Shin, H. H. (2003). Board composition & earning management in Canada. *Journal of Corporate Finance*, 185, 1–27.

Passenheim, O. (2010). *Enterprise Risk Management*. London: Ventus.

Pathan, S., & Faff, R. (2013). Does board structure in banks really affect their performance? *Journal of Banking and Finance*, *37*(5), 1573–1589.

Patton, A., & Baker, J. C. (1987). Why won't directors rock the boat? *Harvard Business Review*, 65(6), 10–18.

Penrose, E. T. (1959). The Theory of the Growth of the Firm. New York: Oxford University Press.

Peter, A. (2008*). Der US-amerikanische Sarbanes-Oxley Act of 2002: Seine Auswirkungen auf die an der New York Stock Exchange notierenden österreichischen Aktiengesellschaften*. Graz: Universität Graz.

Picot, A., Reichwald, R., & Wigand, R. T. (2008). *Information, Organization and Management*. Springer: Berlin.

Plessis, J. P., Großfeld, B., Luttermann, C., Saenger, I., Sandrock, O., & Casper, M. (2012). *German Corporate Governance in International and European Context* (2nd ed.). Heidelberg: Springer.

Pollock, D. (2010). *Good and Faithful Servants. Managing the Administrative Needs* (4th ed.). Washington: Xlibris.

Prahalad, C. K. & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review*, 1990(May-June), 79–91.

Prevost, A. K., Rao, R. P., & Hossain, M. (2002). Determinants of board composition in New Zeal &: a simultaneous equation approach. *Journal of Empirical Finance*, 9, 373–397.

PricewaterhouseCoopers (2002). *Bursa Malaysia PricewaterhouseCoopers Survey, Corporate Governance on Pubic Listed Companies in Malaysia*. Kuala Lumpur: KLSE Publication.

Quirk. T. J. (2015). *Business Statistics*. Cham: Springer.

Ramzi, B. (2008). The influence of institutional investors on opportunistic earnings management. *International Journal of Accounting, Auditing and Performance Evaluation*, *5*(1), 89–106.

Rani, G. G., & Mischr, R. (2008). Corporate Governance: Theory and Practice. New Dehli: Excel Books.

Rappaport, A. (1981). Selecting Strategies that Create Share. *Harvard Business Review*, 59, 139–149.

Rasheed, A. A., & Yoshikawa, T. (2012). The Convergence of Corporate Governance: Promise and Prospects. In A. Rasheed & T. Yoshikawa (Eds.), The Convergence of Corporate Governance: Promise and Prospects (pp. 1–31). London: Palgrave MacMillan.

Reeb, D. M., & Zhao, W. (2013). Director capital and corporate disclosure quality. *Journal of Accounting and Public Policy*, *32*(4), 191–212.

Rehman, W., Rehman, C.A., & Rehman, H., & Zahid, A. (2011). Intellectual capital performance and its impact on corporate performance: An empirical evidence from Modaraba sector of Pakistan. *Australian Journal of Business and Management Research*, *1*(5), 8–16.

Reichwald, R., & Wigand, R. T. (2008). *Information, Organization and Management*. Berlin: Springer.

Renders, A., Gaeremynck, A., & Sercu, P. (2010). Corporate Governance and Performance: Controlling for Sample Selection Bias and Endogeneity. *Corporate Governance*, *18*(2), 87–106.

Renshaw, G., & Ireland, N. J. (2012). *Mathematics for Economics* (4th ed.). Oxford: Oxford University Press.

Renz, P. S. (2007) *Project Governance: Implementing Corporate Governance and Business Ethics in Nonprofit Organization.* Heidelberg: Physica.

Richter, R. (2016). *Essays on New Institutional Economics*. Heidelberg: Springer.

Roberts, J. (2004). *The Modern Firm: Organizational Design for Performance and Growth*. Oxford: Oxford University Press.

Rode, O. (2009). *Der deutsche Corporate-Governance-Kodex: Funktionen und Durchsetzungsmechanismen im Vergleich zum britischen Combined Code*. Frankfurt: Lang.

Roos, S. (2005). *Unternehmensperformance nach Vorstandswechsel: Eine empirische Analyse zur Effizienz deutscher Aufsichtsräte*. Würzburg: Universität Würzburg.

Rose, C. (2016). Firm performance and comply or explain disclosure in corporate governance. *European Management Journal*, *34*(3), 202–222

Rostow. W.W. (1992). Development, Efficiency, and Equity in Historical Perspective. In D. J. Savoie, & I. Brecher (Eds.), *Equity and Efficiency in Economic Development: Essays in Honour of Benjamin Higgins* (pp. 67–99). Quebec: McGill-Queens University Press.

Roth, M. (2013). Corporate Boards in Germany. In P. Davies, P. L. Davies, K. J. Hopt, R. Nowak & G. Solinge (Eds.), *Corporate Boards in European Law: A Comparative Analysis* (pp. 253–366). Oxford: Oxford University Press.

Rugman, A. M. (2002). *International Business: Theory of the multinational enterprise*. London: Routledge.

Sammeck, J. (2012). *A New Institutional Economics Perspective on Industry Self-Regulation*. Wiesbaden: Gabler.

Sarbanes-Oxley Act of 2002 (SOX) (2002). *Public Law No. 107-204, 116 Stat. 745, sec. 1–1107*, Washington, DC: GPO.

Sarkar, J., & Sarkar, S. (2012). *Corporate Governance in India*. New Delhi: Sage.

Schilder, A. (2000*). Government Failures and Institutions in Public Policy Evaluation: The Case of Dutch Technology Policy*. Assen: Van Gorcum.

Schillhofer, A. (2003*). Corporate Governance and Expected Stock Returns: Empirical Evidence from Germany*. Wiesbaden: DUV.

Scholz, F. (2006). *Determinanten von Aufsichtsratsarbeit und ihre Entwicklung. Eine explorative Studie mit Insidern über Aufsichtsräte börsennotierter deutscher Aktiengesellschaften*. Bielefeld: Universität Bielefeld.

Schumpeter, P. (1939). *Business Cycles: A Theoretical, Historical, and Statistical Analysis of the Capitalist Process.* New York. McGraw-Hill.

Schwenker, B., & Spremann, K. (2009): Management Between Strategy and Finance: The Four Seasons of Business. Berlin, Springer.

Scott Kieff, F., & Paredes, T. A. (2010). The CEO and the Board. F. Scott Kieff & T. A. Paredes (Eds.), *Perspectives on Corporate Governance* (pp. 96–116). Cambridge: Cambridge University Press.

Seifert, B., Gonenc, H., Wright, J. (2005). The international evidence on performance and equity ownership by insiders, blockholders, and institutions. *Journal of Multinational Finance Management*, *15*(2), 171–191.

Selig, G. J., LeFave, R., & Bullen, C. V. (2010). *Implementing Strategic Sourcing*. Amerfoort: Van Haren.

Semykina, A., & Wooldridge, J. M. (2013). Estimation of dynamic panel data models with sample selection. *Journal of Applied Econometrics*, *28*(1), 47–61.

Seo, J. (2015). Board Effectiveness and CEO Pay: Board Information Processing Capacity, Monitoring Complexity, and CEO Pay-for-Performance Sensitivity. *Human Resource Management*, in print. Retrieved from (15 June 2015): DOI: 10.1002/hrm.21769.

Shamser, M., & Annuar, M. N. (1993). Management versus shareholders' interest: Board composition, Market risks and shareholder returns of Malaysian listed firms. *Malaysian Management Review*, *28*(2), 44–49.

Shank, T., Hill, R. P., & Stang, J. (2013). Do investors benefit from good corporate governance? *The International Journal of Business in Society*, *13*(4), 384–396.

Shepherd D. & J. Wiklund (2009). Are we comparing apples with apples or apples with oranges? Appropriateness of knowledge accumulation across growth studies. *Entrepreneurship Theory and Practice*, *33*(1), 105–123.

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

Singh, D. A., Gaur, A.S., & Schmid, F. (2010). Corporate diversification, TMT experience and performance. *Management International Review*, *50*(1), 35–56.

Sloman, J., & Garratt, D. (2010). *Essentials of Economics* (5th ed.). Harlow: Pearson.

Solari, S. (2015). Individual Rights, Economic Transactions, and Recognition: A Legal Approach to Social Economics. In M. White (Ed.), *Law and Social Economics: Essays in Ethical Values for Theory, Practice, and Policy* (pp. 41–60). New York: Palgrave Macmillan.

Solomon, J. (2007). *Corporate Governance and Accountability*. Chichester: Wiley.

Sori, Z. M., Ramadili, S. M., & Karbhari, Y. (2009). Audit committee & auditor independence: the bankers' perception. *International Journal of Economics & Management, 3*(2), 317–331.

Spira, L. (2002). *The Audit Committee: Performing Corporate Governance*. New York: Kluwer.

Staikouras, P., Staikouras, C., Agoraki, M. E. (2007). The effect of board size and composition on European bank performance. *European Journal of Law and Economics*, 2007, *23*(1), 1–27.

Stewart, R. (1991). Chairman and chief executive: An exploration of their relationship. *Journal of Management Studies*, *28*(5), 511–528.

Stiglbauer, M. (2010): *Corporate Governance Berichterstattung und Unternehmenserfolg: Eine empirische Untersuchung für den deutschen Aktienmarkt.* Wiesbaden: Springer Gabler.

Stiles, P., & Taylor, B. (1993). Maxwell–The Failure of Corporate Governance. *Corporate Governance–An International Review*, *1*(1), 34–45.

Stout, L. A. (2012). New Thinking on Shareholder Primacy. In P. M. Vasudev S. Watson (Eds.), *Corporate Governance after the Financial Crisis* (p. 25). Cheltenham: Edward Elgar.

Sunday, O. K. (2008). Corporate governance and firm performance: The Case of Nigerian Listed firms. E*uropean Journal of Economics, Finance and Administrative Sciences*, 14, 16–28.

Swiss Exchange (2003). *Studie zur praktischen Umsetzung der Corporate Governance-Richtlinie*. Zürich: Universität Zürich.

Switzer, L.N., & Tang, M. (2009). The Impact of Corporate Governance on the Performance of US Small-Cap Firms. *International Journal of Business*, *14*(4), 343–357.

Talaulicar, T. (2012). Corporate Governance and Initial Public Offerings in Germany. In A. Zattoni & W. Judge (Eds.), *Corporate Governance and Initial Public Offerings: An International Perspective* (pp. 141–166). Cambridge: Cambridge University Press.

Talbot, C. (2010). *Theories of Performance: Organizational Improvement*. Oxford: Oxford University Press.

Tang, S. (2011). *A General Theory of Institutional Change*. Milton Park: Routledge.

Tanna, S., Pasiouras, F., & Nnadi, M. (2011). The Effect of Board Size and Composition on the Efficiency of UK Banks. *International Journal of the Economics of Business*, *18*(3), 441–462.

Tremml, B., & Buecker, B. (2002). Recognized Forms of Business Organization. In M. Wendler, B. Tremml & B. J. Buecker (eds.), *Key Aspects of German Business Law: A Practical Manual* (2nd ed.) (pp. 7–30). Berlin: Springer.

Turley, S., & Zaman, M. (2007). Audit committee effectiveness: informal processes and behavioural effects. *Accounting, Auditing & Accountability Journal*, *20*(5). 765–788.

Upadhyay, A. D., Bhargava, R., & Faircloth, S. D. (2014). Board structure and role of monitoring committees. *Journal of Business Research*, *67*(7), 1486–1492.

Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics*, *53*(1), 113–142.

Van den Berghe, L. (1999). *International Standardisation of Good Corporate Governance*. New York: Springer.

Vernimmen, P., Quiry, P., Dallocchio, M., Le Fur, Y. & Salvi, A. (2014). *Corporate Finance: Theory and Practice*. Chichester: Wiley.

Wang, C. J. (2012). Board size and firm risk-taking. *Review of Quantitative Finance and Accounting*, *38*(4), 519–542.

Wei, Y. (2013). *Comparative Corporate Governance: A Chinese Perspective*. The Hague: Kluwer.

Weir, C., & Laing, D. (1999). *The Governance-Performance Relationship: The Effects of Cadbury Compliance on UK Quoted Companies*. Bordeaux: European Accounting Conference.

Wengler, S. (2006). *Key Account Management in Business-to-Business Markets: An Assessment of Its Economic Value*. Wiesbaden: Springer.

Wentges, P. (2002). *Corporate Governance und Stakeholder-Ansatz: Implikationen für die betriebliche Finanzwirtschaft*. Wiesbaden: DUV.

Werder, A., & Talaulicar, T. (2006). Kodex Report 2006: Die Akzeptanz der Empfehlungen und Anregungen des Deutschen Corporate Governance Kodex. *Der Betrieb*, *59*(6). 849–855.

Whelan, F. G. (2015). *Political Thought of Hume and His Contemporaries: Enlightenment* (Volume 2). Milton Park: Taylor & Francis.

Williams, C. C. (2006). *The Hidden Enterprise Culture: Entrepreneurship in the Underground Economy*. Cheltenham: Edward Elgar.

Williams, D. R., Duncan, W. J., Ginter, P. M., & Shewchuk, R. M. (2006). Do governance, equity characteristics, & venture capital involvement affect long-term wealth creation in US health care & biotechnology IPOs? *Journal of Health Care Finance*, *33*(1), 54–71.

Williamson, O. (1971). The Vertical Integration of Production: Market Failure. *American Economic Review*, *61*(2), 112–123.

Williamson, O. (1975). *Market and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.

Williamson, O. (1998). Transaction Cost Economics: How It Works; Where It Is Headed. *De Economicst*, *146*(1), 23–58.

Wintoki, M. B., Linck, J., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. *Journal of Financial Economics*, 105, 581–606.

Woodruffe, C. (1993). What is meant by a competency*? Leadership & Organization Development Journal*, *14*(1), 29–36.

World Bank (2008). *World Development Indicators*. Washington: World Bank.

Wouters, J., & Ryngaert, C. (2005). Good Governance: Lessons from International Organizations'. In D. Curtin & R. A. Wessel (Eds.), *Good Governance and the European Union: Reflections on Concepts* (pp. 69–102). Antwerp: Intersentia.

Yang, H., & Morgan, S. (2011). *Business Strategy and Corporate Governance*. Oxford: Chandos.

Yermack, D. (1996). Higher Market Valuation of Companies with a Small Board of Directors. *Journal of Financial Economics*, 40, 185–211.

Yu, F.-L. T. (2011). *New Perspectives on Economic Development: A Human Agency Approach*. Wageningen: Springer/Wageningen Academic.

Zahra, S. A., & Pearce, J. A. (1989). Boards of Directors and Corporate Financial Performance: A Review and Integrative Model. *Journal of Management*, *15*(2), 291–334.

Zarbafi, E. M. (2011). *Responsible Investment and the Claim of Corporate Change: A Sensemaking Perspective*. Wiesbaden: Springer.

Zhao, Y. (2011). *Corporate Governance and Directors' Independence*. Alphen: Kluwer Law.

Appendices

Annex I. Introductory Letter and Questionnaire

a) Introductory Letter

(Translation from original German Text)

Dear Mr./Mrs.…

With support of Professor Dr. Josef Neuert, University of Fulda, I am working on a research project relative to the impact of Corporate Governance and board room competence on firm performance. Within this project we are mainly focused to discover elements of good corporate governance which drive successful companies and which supervisory structures and competences provide an impact on firm performance and value.

So far all publicly available data from General meetings and Supervisory meetings have been collected and analyzed as to the focus of the research project over all German listed companies. To complement these data, I intent to conduct more in depths personal expert interviews to learn more about the potential for improvements as to supervisory structure, work streams and competences.

The anonymized results of these interviews may help also you in your daily supervisory work and will be made available to you once the project is completed.

Considering your valuable time and in order to facilitate the interview efficiently, I attach an overview of the topics for the intended discussion. We may need not much more than 30 minutes. Of course, the information you provide will be kept strictly anonym.

I am very thankful if you could support this research project with your valuable experience.

Please let me know a time for the interview that would be suitable to you. I can be best reached under +49 162 2681417.

Thank you so much and best regards,

Knut Michelberger

b) Questionnaire

Name:
Company Name:
Supervisory Function (Ordinary Member, Chairman):
Committee Membership (yes/no):
Sex:
Age:
Experience as Supervisory Board Member (in years):
CEO Experience (yes/no):

1. What is your definition of supervisory board work quality? Multiple answers are possible.
    a) Good Structure, Preparation, and Organization of Board Meetings
    b) Open Culture of Discussion
    c) Cooperation between Management Board and Supervisory Board Concerning Strategy Decisions
    d) Involvement of Supervisory Board Committees in Decision Making
    e) Transparent Supervisory Board Nomination Process
2. Which three personality traits should have a supervisory board member to enhance the quality of work of the supervisory board?
    a) Extraordinary Engagement
    b) Empathy
    c) Special Qualifications and Professional Competence
    d) Analytic Thinking
    e) Sensitivity in the Interaction with Executives
    f) Strategy Thinking and Far-Sightedness.

3.1 Which essential areas of competence shall have one Supervisory Board at least?
    a) International Working and Leadership Experience
    b) Working Experience in Different Industries
    c) Supervisory Professionalism in the Form of Holding Several Supervisory Mandates
    d) Combined Mandates as Supervisory Board Member and CEO in Different Organizations
    e) Long-Time Experience as CEO
    f) Cross-Functional Experience.

3.2 Which essential areas of competence shall have the Supervisory Board as Governing Body?
    a) Broad Spectrum of Professional Experience
    b) High Division of Labor through Committee Formation
    c) Experienced Chairman
    d) General Diversity

4. Which activities do you consider as the most important task of the supervisory board?
    a) Executive Board Nomination and Supervision
    b) Approval of Submitted Plans and of the Corporate Strategy
    c) Compliance and Risk Monitoring
    d) Approval of Essential Investment Activities as well as of Mergers & Acquisitions
    e) Strategy Directives
    e) Support and Consulting Regarding Business Operations
    f) Co-Decision Concerning the Second-Level Management
5. From your experience as a supervisory board member: How has supervisory board practice changed in the last 10 years? Please name positive and negative changes!
6. If you are in the German Corporate Governance Code Committee: Which essential change would you propose to increase the quality of supervisory board activities?

Annex II. Dataset of the Quantitative Data Analysis

Total Sample

Name	Abbrev.	Index	5-y TSR Growth	5-y Rev. Growth	Sup. Board Size	Exec. Board Size
Amadeus Fire AG	AAD	SDAX	27.96	7.78	7	3
ADLER Real Estate AG	ADL	SDAX	94.2	99.40	3	2
Adidas AG	ADS	DAX30	22.97	6.96	12	4
ADVA Optical Networking SE	ADV	TecDAX	10.96	7.82	6	5
Carl Zeiss Meditec AG	AFX	TecDAX	17.87	7.27	6	4
Aixtron SE	AIXA	TecDAX	-24.52	-8.54	6	3
Allianz Group	ALV	DAX30	11.24	2.62	12	10
Vonovia SE	ANN	DAX30	56.46	19.53	8	3
alstria office Reit-AG	AOX	SDAX	7.31	-0.14	6	2
Bayer AG	BAYN	DAX30	18.75	6.27	21	5
Bechtle AG	BC8	TecDAX	26.73	13.35	12	3
Bertrandt AG	BDT	SDAX	20.2	17.74	6	2
Beiersdorf AG	BEI	DAX30	12.8	1.80	12	6
BASF AG	BF	DAX30	9.16	7.95	15	8
Biotest AG	BIO	SDAX	2.75	5.74	7	2
BMW	BMW	DAX30	15.87	9.67	21	7
Brenntag AG	BNR	MDAX	20.01	9.49	6	3
Hugo Boss AG	BOSS	MDAX	21.75	10.49	18	5
Borussia Dortmund GmbH & Co. KGaA	BVB	SDAX	19.91	20.17	6	2
BayWa AG	BYW	SDAX	5.82	16.20	17	6
Capital Stage AG	CAP	SDAX	37.3	29.95	6	2
Celesio AG	CLS1	MDAX	9.11	0.76	12	6
Cancom SE	COK	TecDAX	31.87	14.41	6	3
comdirect bank AG	COM	SDAX	10.12	4.48	8	4
Continental	CON	DAX30	29.91	11.42	20	8
CompuGroup Medical AG	COP	TecDAX	25	11.40	6	5
CEWE Stiftung & Co. KGaA	CWC	SDAX	11.8	5.03	6	4
Deutsche Börse	DB1	DAX30	13.58	2.01	18	6
Deutsche EuroShop AG	DEQ	MDAX	12.84	9.50	6	3
Deutz AG	DEZ	SDAX	-10.39	12.13	7	3
DIC Asset AG	DIC	SDAX	8.18	1.05	6	3
Deutsche Post	DPW	DAX30	16.64	4.15	21	7
Drillisch AG	DRI	TecDAX	53.85	-3.41	7	2
Drägerwerk AG & Co. KGaA	DRW3	TecDAX	2.8	4.96	12	5
Deutsche Telekom	DTE	DAX30	30.11	-0.61	20	8
Dürr AG	DUE	MDAX	48.07	19.03	12	2
Deutsche Wohnen AG	DWNI	MDAX	29.27	24.19	6	2
E.ON	EOAN	DAX30	-8.92	6.40	20	6
CTS EVENTIM AG	EVD	MDAX	13.47	8.14	4	3
Evonik Industries AG	EVK	MDAX	28.12	-0.24	21	3
Evotec AG	EVT	TecDAX	10.97	15.96	7	5

Fielmann AG	FIE	MDAX	13.02	5.19	22	4
Fresenius Medical Care	FME	DAX30	12.41	7.08	7	7
Freenet AG	FNTN	TecDAX	32.12	-3.59	12	4
Fuchs Petrolub SE	FPE	MDAX	4.1	9.63	6	5
Fraport AG	FRA	MDAX	7.06	3.08	21	5
Fresenius	FRE	DAX30	26.65	10.40	12	7
GEA Group AG	G1A	MDAX	14.6	0.47	13	4
Bilfinger SE	GBF	MDAX	-0.47	-4.28	13	7
GfK SE	GFK	SDAX	2.14	4.52	10	7
DMG Mori Seiki AG	GIL	MDAX	24.07	13.54	15	5
Grenkeleasing AG	GLJ	SDAX	35.33	10.52	8	6
Grammer AG	GMM	SDAX	6.56	13.43	14	3
Gesco AG	GSC1	SDAX	10.52	10.39	3	2
Gerry Weber AG	GW1	MDAX	2.16	7.48	6	4
Gerresheimer AG	GXI	MDAX	21.38	5.22	13	5
Hamborner Reit AG	HAB	SDAX	9.33	21.35	9	2
Hornbach-Baumarkt-AG	HBM	SDAX	-5.38	4.55	13	5
Heidelberger Druckmaschinen AG	HDD	SDAX	-4.84	0.24	19	5
HeidelbergCement	HEI	DAX30	13.05	2.54	12	5
Henkel	HEN	DAX30	19.37	3.89	15	5
Hamburger Hafen und Logistik AG	HHFA	SDAX	-11.98	3.90	14	5
Hannover Rückversicherung AG	HNR1	MDAX	25.8	-15.54	9	7
Hochtief AG	HOT	MDAX	6.91	4.00	17	5
Infineon Technologies	IFX	DAX30	15.88	7.37	16	3
Indus Holding AG	INH	SDAX	18.7	10.29	6	4
Jenoptik AG	JEN	TecDAX	25.64	4.50	8	3
Jungheinrich AG	JUNG3	MDAX	20.94	8.30	7	4
Klöckner & Co SE	KCO	MDAX	-12.68	11.00	6	2
Krones AG	KRN	MDAX	22.67	9.63	11	5
KUKA AG	KU2	MDAX	37.82	18.36	19	3
Leoni AG	LEO	MDAX	10.29	13.69	12	3
Lufthansa	LHA	DAX30	-0.32	6.14	20	4
Linde	LIN	DAX30	10.06	8.74	12	4
LPKF Laser & Electronics AG	LPK	TecDAX	-7.81	18.75	3	3
Lanxess AG	LXS	MDAX	1.12	9.62	16	4
Manz AG	M5Z	TecDAX	-3.92	29.95	5	3
MAN SE	MAN	MDAX	3.6	3.50	17	4
Metro Group	MEO	MDAX	-10.17	-1.30	20	6
MLP AG	MLP	SDAX	-10.45	1.06	6	3
MorphoSys AG	MOR	TecDAX	25.95	-4.61	6	4
Merck	MRK	DAX30	24.13	8.22	16	4
MTU Aero Engines AG	MTX	MDAX	15.9	8.43	13	4
Munich Re	MUV2	DAX30	12.5	-1.36	20	9
Nordex SE	NDX1	TecDAX	32.51	8.68	6	5
Nemetschek AG	NEM	TecDAX	40.95	10.00	3	2
Xing AG	O1BC	TecDAX	43.2	17.66	5	4

Patrizia Immobilien AG	P1Z	SDAX	55.84	3.07	3	3
Pfeiffer Vacuum Technology AG	PFV	TecDAX	13.13	17.44	6	2
ProSiebenSat.1 Media SE	PSM	MDAX	59.76	0.82	16	4
QSC AG	QSC	TecDAX	1.31	0.51	6	3
Rational AG	RAA	SDAX	20.96	9.58	3	4
Rheinmetall AG	RHM	MDAX	3.3	6.51	19	3
RIB Software AG	RSTA	TecDAX	36.11	18.40	6	3
RWE	RWE	DAX30	-20.54	-0.02	21	6
SMA Solar Technology AG	S92	TecDAX	-10.98	-2.93	8	7
SAP	SAP	DAX30	15.28	10.47	16	9
Ströer Media AG	SAX	SDAX	18.98	8.95	7	3
STADA Arzneimittel AG	SAZ	MDAX	10.65	5.62	9	4
Stratec Biomedical AG	SBS	TecDAX	13.6	12.72	3	3
K+S	SDF	DAX30	-11.64	1.35	16	5
SAF-Holland S.A.	SFQ	SDAX	19.01	17.99	5	7
SGL Carbon SE	SGL	SDAX	-8.41	1.73	13	5
Siemens	SIE	DAX30	5.18	-1.27	20	9
Sixt AG	SIX2	SDAX	11.92	2.32	3	4
Koenig & Bauer AG	SKB	SDAX	16	0.93	12	5
Schaltbau Holding AG	SLT	SDAX	22.55	9.75	6	2
Software AG	SOW	TecDAX	-23.41	0.25	6	6
Axel Springer SE	SPR	MDAX	10.82	3.07	10	4
Sartorius AG	SRT	TecDAX	58.46	8.16	12	3
Symrise AG	SY1	MDAX	23.28	9.25	12	3
Salzgitter AG	SZG	MDAX	-12.24	2.95	22	6
Südzucker AG	SZU	MDAX	2.4	3.46	20	5
TAG Immobilien AG	TEG	MDAX	15.77	33.27	6	4
ThyssenKrupp	TKA	DAX30	-6.93	0.36	25	6
Talanx AG	TLX	MDAX	18.83	2.38	16	7
Tom Tailor Holding AG	TTI	SDAX	-26.96	31.32	6	3
Takkt AG	TTK	SDAX	14.94	6.03	7	3
United Internet AG	UTDI	TecDAX	30.61	13.06	3	2
Villeroy & Boch AG	VIB3	SDAX	26.29	-2.38	12	3
Vossloh AG	VOS	SDAX	-2.37	2.44	6	2
Volkswagen Group	VOW3	DAX30	2.55	2.77	17	8
VTG AG	VT9	SDAX	16.14	7.07	6	3
Wacker Neuson SE	WAC	SDAX	1.32	16.56	7	4
Wacker Chemie AG	WCH	MDAX	-11	5.35	16	4
Wirecard AG	WDI	TecDAX	35.12	21.34	3	3
ElringKlinger AG	ZIL2	MDAX	-2.72	18.01	13	3
Zooplus AG	ZO1	SDAX	24.59	34.66	3	4

Name	Sup. Board Comp. TEUR	Exec. Board Comp. TEUR	Number Board Meetings	Number Sup. Board Memb. with PhD	Number of Comittees	Nomination committee (yes=1, no=0)
Amadeus Fire AG	130	1537	6	1	2	0
ADLER Real Estate AG	34	299	4	0	0	0
Adidas AG	920	11500	5	2	7	1
ADVA Optical Networking SE	360	1784	8	0	4	1
Carl Zeiss Meditec AG	316	922	7	3	3	1
Aixtron SE	801	9003	4	3	3	1
Allianz Group	1463	37836	5	5	5	1
Vonovia SE	151	2800	4	1	0	0
alstria office Reit-AG	305	1464	6	1	2	0
Bayer AG	2290	16340	4	11	4	1
Bechtle AG	389	1906	4	2	3	0
Bertrandt AG	181	2399	4	2	2	1
Beiersdorf AG	1389	4566	6	4	4	1
BASF AG	2812	22252	4	4	3	1
Biotest AG	226	964	5	3	3	0
BMW	3107	18200	5	6	4	1
Brenntag AG	518	7148	9	3	2	1
Hugo Boss AG	1461	3248	10	2	5	1
Borussia Dortmund GmbH & Co. KGaA	52.5	1060	4	0	0	0
BayWa AG	463	7281	4	3	3	0
Capital Stage AG	135	629	4	4	1	0
Celesio AG	848	7513	7	4	4	1
Cancom SE	91	1281	4	0	0	0
comdirect bank AG	278	1590	5	1	2	0
Continental	1400	15116	15	7	3	1
CompuGroup Medical AG	260	3413	7	4	1	0
CEWE Stiftung & Co. KGaA	158	1322	5	3	0	0
Deutsche Börse	1531	15167	8	3	6	1
Deutsche EuroShop AG	223	1154	4	3	3	0
Deutz AG	598	2740	9	4	4	1
DIC Asset AG	204	1503	11	1	1	0
Deutsche Post	1100	11907	4	4	5	1
Drillisch AG	105	2288	7	3	3	1
Drägerwerk AG & Co. KGaA	631	7539	5	4	3	1
Deutsche Telekom	1942	14385	5	5	7	1
Dürr AG	395	2251	5	5	4	1
Deutsche Wohnen AG	150	1175	4	3	5	1
E.ON	4857	15400	4	6	5	1
CTS EVENTIM AG	80	2233	6	2	0	0
Evonik Industries AG	2399	8321	5	7	4	1
Evotec AG	248	2087	4	5	2	1
Fielmann AG	337	6928	4	2	1	1

Fresenius Medical Care	852	10487	4	4	3	1
Freenet AG	968	2107	8	3	4	1
Fuchs Petrolub SE	405	5547	5	4	3	1
Fraport AG	519	4307	5	0	6	1
Fresenius	1782	14108	4	5	3	1
GEA Group AG	745	4935	5	3	4	0
Bilfinger SE	1725	14879	7	3	4	1
GfK SE	416	7452	7	3	4	1
DMG Mori Seiki AG	329	4027	9	5	3	1
Grenkeleasing AG	79	1739	5	4	2	0
Grammer AG	201	1495	2	4	4	1
Gesco AG	220	1024	10	0	0	0
Gerry Weber AG	488	5406	4	2	2	1
Gerresheimer AG	1085	5263	4	3	4	1
Hamborner Reit AG	158	697	7	3	3	1
Hornbach-Baumarkt-AG	211	3955	4	1	3	0
Heidelberger Druckmaschinen AG	392	4464	4	7	5	1
HeidelbergCement	815	12532	7	1	4	1
Henkel	1424	13866	4	3	2	1
Hamburger Hafen und Logistik AG	323	2553	4	3	5	1
Hannover Rückversicherung AG	777	4109	4	3	3	1
Hochtief AG	2779	7074	6	4	5	1
Infineon Technologies	466	3373	8	3	5	1
Indus Holding AG	251	1616	4	4	1	1
Jenoptik AG	82	1901	4	6	0	0
Jungheinrich AG	839	4684	7	0	3	0
Klöckner & Co SE	382	1933	5	4	4	1
Krones AG	243	5023	4	4	1	0
KUKA AG	718	2642	8	8	6	1
Leoni AG	1315	4526	5	3	4	1
Lufthansa	2608	10781	4	7	3	1
Linde	860	11901	4	3	4	1
LPKF Laser & Electronics AG	135	960	8	2	0	0
Lanxess AG	3447	6558	7	5	4	1
Manz AG	39	944	6	4	0	0
MAN SE	2183	11205	5	4	3	1
Metro Group	1699	16828	6	5	5	1
MLP AG	333	2542	6	3	2	1
MorphoSys AG	382	2216	8	6	3	1
Merck	527	9667	4	5	3	1
MTU Aero Engines AG	704	8671	6	5	4	1
Munich Re	1632	11662	6	7	5	1
Nordex SE	122	2237	5	2	3	1
Nemetschek AG	228	546	4	2	0	0
Xing AG	160	1828	6	2	3	1
Patrizia Immobilien AG	62	2100	4	1	0	0

Pfeiffer Vacuum Technology AG	135	1459	11	2	4	1
ProSiebenSat.1 Media SE	697	4161	6	2	3	1
QSC AG	160	1700	5	0	3	1
Rational AG	580	3500	8	0	0	0
Rheinmetall AG	630	6058	4	7	4	1
RIB Software AG	42	625	4	2	0	0
RWE	3434	20358	4	8	5	1
SMA Solar Technology AG	352	2466	4	2	4	1
SAP	995	34882	8	6	8	1
Ströer Media AG	190	5137	11	1	0	0
STADA Arzneimittel AG	835	4544	10	3	2	0
Stratec Biomedical AG	122	1617	5	3	0	0
K+S	1408	7044	6	7	4	1
SAF-Holland S.A.	261	2983	7	1	0	0
SGL Carbon SE	468	9306	4	3	4	1
Siemens	3817	34200	6	6	6	1
Sixt AG	200	7235	4	1	0	0
Koenig & Bauer AG	300	2600	4	2	5	1
Schaltbau Holding AG	112	1000	4	1	1	0
Software AG	752	16331	9	0	5	1
Axel Springer SE	2800	17900	5	5	4	1
Sartorius AG	693	1827	4	6	4	1
Symrise AG	769	3203	6	4	4	1
Salzgitter AG	1071	6662	5	9	4	1
Südzucker AG	1600	2600	4	5	5	0
TAG Immobilien AG	102	1332	5	2	2	0
ThyssenKrupp	1774	12309	4	10	6	1
Talanx AG	1857	6224	4	6	4	1
Tom Tailor Holding AG	258	2289	4	1	0	0
Takkt AG	540	2764	5	4	1	0
United Internet AG	269	1072	4	0	0	0
Villeroy & Boch AG	389	1968	4	2	4	0
Vossloh AG	689	2839	5	3	3	1
Volkswagen Group	5348	36671	6	9	7	1
VTG AG	234	2835	5	5	2	0
Wacker Neuson SE	260	6210	12	2	2	0
Wacker Chemie AG	1373	8285	4	3	3	0
Wirecard AG	554	2876	6	0	0	0
ElringKlinger AG	501	1921	7	3	3	0
Zooplus AG	15	1639	4	1	0	0

Name	Audit Committee (yes/no)	Strategy Committee (yes=1, no=0)	Numb. SB-Members with oth. Mandates	Number of Excep. § 161 AktG	Number of Excep. DCGK § 3
Amadeus Fire AG	1	0	0	5	1
ADLER Real Estate AG	0	0	0	14	1
Adidas AG	1	0	5	7	1
ADVA Optical Networking SE	1	1	6	6	1
Carl Zeiss Meditec AG	1	0	2	2	1
Aixtron SE	1	1	4	0	0
Allianz Group	1	0	2	0	0
Vonovia SE	0	0	0	4	0
alstria office Reit-AG	1	1	1	5	1
Bayer AG	1	0	20	2	1
Bechtle AG	1	0	8	8	1
Bertrandt AG	1	0	4	6	1
Beiersdorf AG	1	0	11	1	0
BASF AG	1	0	8	0	0
Biotest AG	1	0	0	1	0
BMW	1	0	12	1	1
Brenntag AG	1	0	6	0	0
Hugo Boss AG	1	0	1	4	1
Borussia Dortmund GmbH & Co. KGaA	0	0	4	23	1
BayWa AG	1	1	0	8	1
Capital Stage AG	0	0	6	6	1
Celesio AG	1	0	6	3	0
Cancom SE	0	0	0	6	1
comdirect bank AG	1	0	8	4	1
Continental	1	0	14	2	0
CompuGroup Medical AG	1	0	4	7	0
CEWE Stiftung & Co. KGaA	0	0	0	9	1
Deutsche Börse	1	1	17	6	1
Deutsche EuroShop AG	1	1	4	5	1
Deutz AG	1	0	2	5	3
DIC Asset AG	1	0	4	9	1
Deutsche Post	1	1	0	0	0
Drillisch AG	1	0	7	8	1
Drägerwerk AG & Co. KGaA	1	0	11	2	0
Deutsche Telekom	1	0	17	0	0
Dürr AG	1	0	8	3	1
Deutsche Wohnen AG	1	1	6	4	0
E.ON	1	0	18	0	0
CTS EVENTIM AG	0	0	3	9	1
Evonik Industries AG	1	1	15	1	0
Evotec AG	1	0	6	3	1
Fielmann AG	0	0	0	6	0
Fresenius Medical Care	1	1	4	7	1
Freenet AG	1	0	0	6	5

Fuchs Petrolub SE	1	0	4	2	0
Fraport AG	1	1	17	2	0
Fresenius	1	0	12	8	1
GEA Group AG	1	0	6	1	0
Bilfinger SE	1	0	7	11	1
GfK SE	1	0	5	0	0
DMG Mori Seiki AG	1	0	8	1	0
Grenkeleasing AG	1	0	6	4	1
Grammer AG	1	1	6	0	0
Gesco AG	0	0	2	5	0
Gerry Weber AG	1	0	0	4	1
Gerresheimer AG	1	0	3	3	0
Hamborner Reit AG	1	0	5	1	0
Hornbach-Baumarkt-AG	1	0	0	7	1
Heidelberger Druckmaschinen AG	1	0	12	2	0
HeidelbergCement	1	0	7	6	1
Henkel	1	0	8	2	0
Hamburger Hafen und Logistik AG	1	0	13	2	0
Hannover Rückversicherung AG	1	0	3	1	0
Hochtief AG	1	1	8	0	0
Infineon Technologies	1	1	9	4	1
Indus Holding AG	0	0	0	4	1
Jenoptik AG	0	0	6	10	1
Jungheinrich AG	1	0	1	9	1
Klöckner & Co SE	1	0	6	4	1
Krones AG	1	0	0	8	1
KUKA AG	1	1	1	4	1
Leoni AG	1	0	1	0	0
Lufthansa	1	0	13	2	0
Linde	1	0	6	0	0
LPKF Laser & Electronics AG	0	0	2	10	1
Lanxess AG	1	0	15	4	1
Manz AG	0	0	2	4	1
MAN SE	1	0	15	1	0
Metro Group	1	0	19	1	0
MLP AG	1	0	0	9	0
MorphoSys AG	1	1	5	5	0
Merck	1	1	10	2	1
MTU Aero Engines AG	1	0	7	1	0
Munich Re	1	0	18	0	0
Nordex SE	1	1	4	12	1
Nemetschek AG	0	0	3	10	1
Xing AG	1	0	2	10	1
Patrizia Immobilien AG	0	0	3	8	1
Pfeiffer Vacuum Technology AG	1	0	2	2	0
ProSiebenSat.1 Media SE	1	0	7	7	1

QSC AG	1	0	4	10	1
Rational AG	0	0	0	6	0
Rheinmetall AG	1	0	15	0	0
RIB Software AG	0	0	0	11	1
RWE	1	0	16	3	0
SMA Solar Technology AG	1	0	1	4	0
SAP	1	1	7	1	1
Ströer Media AG	0	0	3	10	1
STADA Arzneimittel AG	1	0	0	5	1
Stratec Biomedical AG	0	0	0	12	1
K+S	1	0	7	1	0
SAF-Holland S.A.	0	0	6	15	1
SGL Carbon SE	1	1	7	3	1
Siemens	1	1	11	0	0
Sixt AG	0	0	3	14	1
Koenig & Bauer AG	1	1	5	6	1
Schaltbau Holding AG	0	0	4	10	1
Software AG	1	1	3	0	0
Axel Springer SE	1	1	8	8	1
Sartorius AG	1	0	0	0	0
Symrise AG	1	0	5	0	0
Salzgitter AG	1	1	18	1	0
Südzucker AG	1	0	6	6	0
TAG Immobilien AG	1	0	4	4	0
ThyssenKrupp	1	1	17	1	0
Talanx AG	1	0	0	3	1
Tom Tailor Holding AG	0	0	5	7	0
Takkt AG	0	0	0	5	0
United Internet AG	0	0	3	7	1
Villeroy & Boch AG	1	0	6	6	1
Vossloh AG	1	0	4	0	0
Volkswagen Group	1	0	15	4	1
VTG AG	0	0	5	11	1
Wacker Neuson SE	1	0	1	16	1
Wacker Chemie AG	1	0	8	5	1
Wirecard AG	0	0	3	8	1
ElringKlinger AG	1	0	7	11	1
Zooplus AG	0	0	0	12	1

Name	Number of Excep. DCGK § 5	Excep. DCGK § 5.3.2 (yes=1, no=0)	Except. DCGK § 5.3.3 (yes=1, no=0)	Exceptions to DCGK Zif. 5.4.2 (yes=1, no=0)	Excep. DCGK § 5.4.6 Abs. 2, (yes=1, no=0)
Amadeus Fire AG	2	0	0	0	1
ADLER Real Estate AG	5	1	1	1	1
Adidas AG	4	0	0	0	1

ADVA Optical Networking SE	2	0	0	0	0
Carl Zeiss Meditec AG	1	0	0	0	0
Aixtron SE	0	0	0	0	0
Allianz Group	0	0	0	0	0
Vonovia SE	3	1	1	0	1
alstria office Reit-AG	2	1	0	0	1
Bayer AG	1	0	0	0	0
Bechtle AG	3	0	1	0	0
Bertrandt AG	2	0	0	0	0
Beiersdorf AG	0	0	0	0	0
BASF AG	0	0	0	0	0
Biotest AG	1	0	1	0	0
BMW	0	0	0	0	0
Brenntag AG	0	0	0	0	0
Hugo Boss AG	1	0	0	0	0
Borussia Dortmund GmbH & Co. KGaA	9	1	1	0	1
BayWa AG	4	0	0	0	1
Capital Stage AG	3	1	1	0	1
Celesio AG	1	0	0	0	0
Cancom SE	4	1	1	1	1
comdirect bank AG	2	0	1	0	1
Continental	1	0	0	0	0
CompuGroup Medical AG	4	0	1	0	1
CEWE Stiftung & Co. KGaA	4	1	1	0	0
Deutsche Börse	1	0	0	0	1
Deutsche EuroShop AG	3	0	1	0	1
Deutz AG	2	0	0	0	0
DIC Asset AG	2	0	1	0	0
Deutsche Post	0	0	0	0	0
Drillisch AG	5	0	0	0	1
Drägerwerk AG & Co. KGaA	1	0	0	0	0
Deutsche Telekom	0	0	0	0	0
Dürr AG	1	0	0	0	0
Deutsche Wohnen AG	2	0	0	0	0
E.ON	0	0	0	0	0
CTS EVENTIM AG	5	1	1	0	1
Evonik Industries AG	0	0	0	0	0
Evotec AG	1	0	0	0	0
Fielmann AG	3	1	0	0	1
Fresenius Medical Care	4	0	0	0	1
Freenet AG	0	0	0	0	0
Fuchs Petrolub SE	1	0	0	0	0
Fraport AG	1	0	0	0	0
Fresenius	6	0	1	0	0
GEA Group AG	1	0	0	0	1
Bilfinger SE	10	0	0	0	1

GfK SE	0	0	0	0	0
DMG Mori Seiki AG	0	0	0	0	0
Grenkeleasing AG	2	0	0	0	0
Grammer AG	0	0	0	0	0
Gesco AG	2	1	1	0	0
Gerry Weber AG	1	0	0	0	0
Gerresheimer AG	1	0	0	0	0
Hamborner Reit AG	0	0	0	0	0
Hornbach-Baumarkt-AG	4	0	1	0	0
Heidelberger Druckmaschinen AG	0	0	0	0	0
HeidelbergCement	2	0	0	0	0
Henkel	0	0	0	0	0
Hamburger Hafen und Logistik AG	0	0	0	0	0
Hannover Rückversicherung AG	0	0	0	0	0
Hochtief AG	0	0	0	0	0
Infineon Technologies	0	0	0	0	0
Indus Holding AG	2	1	0	0	1
Jenoptik AG	4	1	1	0	1
Jungheinrich AG	5	0	1	0	0
Klöckner & Co SE	1	0	0	0	0
Krones AG	3	0	1	0	0
KUKA AG	1	0	0	0	0
Leoni AG	0	0	0	0	0
Lufthansa	2	0	0	0	0
Linde	0	0	0	0	0
LPKF Laser & Electronics AG	2	1	1	0	0
Lanxess AG	1	0	0	0	1
Manz AG	1	1	0	0	0
MAN SE	1	0	0	0	0
Metro Group	0	0	0	0	0
MLP AG	6	0	0	0	0
MorphoSys AG	2	0	0	0	1
Merck	1	0	0	0	0
MTU Aero Engines AG	0	0	0	0	1
Munich Re	0	0	0	0	0
Nordex SE	4	0	0	0	1
Nemetschek AG	5	1	1	0	0
Xing AG	6	1	1	0	1
Patrizia Immobilien AG	5	1	1	0	0
Pfeiffer Vacuum Technology AG	2	0	0	0	1
ProSiebenSat.1 Media SE	3	0	0	0	0
QSC AG	3	0	0	0	1
Rational AG	4	1	1	0	0
Rheinmetall AG	0	0	0	0	0
RIB Software AG	8	1	1	0	1
RWE	3	0	0	0	0

SMA Solar Technology AG	4	0	0	1	0
SAP	0	0	0	0	0
Ströer Media AG	6	1	1	0	1
STADA Arzneimittel AG	2	0	1	0	0
Stratec Biomedical AG	5	1	1	0	1
K+S	1	0	0	0	1
SAF-Holland S.A.	5	1	1	0	1
SGL Carbon SE	1	0	0	0	1
Siemens	0	0	0	0	0
Sixt AG	7	1	1	0	0
Koenig & Bauer AG	2	0	0	0	0
Schaltbau Holding AG	5	1	1	0	0
Software AG	0	0	0	0	0
Axel Springer SE	2	0	0	0	0
Sartorius AG	0	0	0	0	0
Symrise AG	0	0	0	0	0
Salzgitter AG	1	0	0	0	0
Südzucker AG	3	0	1	0	1
TAG Immobilien AG	1	0	1	0	0
ThyssenKrupp	1	1	1	1	1
Talanx AG	1	0	0	0	0
Tom Tailor Holding AG	6	1	1	0	1
Takkt AG	3	1	1	0	0
United Internet AG	1	1	1	0	0
Villeroy & Boch AG	2	0	1	0	0
Vossloh AG	0	0	0	0	0
Volkswagen Group	0	0	0	0	0
VTG AG	4	1	1	0	0
Wacker Neuson SE	7	0	1	0	0
Wacker Chemie AG	2	0	1	0	0
Wirecard AG	5	1	1	0	0
ElringKlinger AG	5	0	1	0	0
Zooplus AG	4	1	1	0	1

Name	**5y Average ROIC**	**Rev. Share Mgmet Costs**	**5y Average Financ. Lev.**	**Revenue 2010 EUR Mil**	**Revenue 2014 EUR Mil**
Amadeus Fire AG	36.346	0.01895652	1.494	118	161
ADLER Real Estate AG	4.228	0.00202837	3.124	51	141
Adidas AG	9.672	0.00074714	2.192	11,990	14,534
ADVA Optical Networking SE	6.618	0.00573156	1.896	292	339
Carl Zeiss Meditec AG	11.392	0.00158636	1.448	677	909
Aixtron SE	-2.536	0.02076289	1.258	784	194
Allianz Group	10.42	0.00029081	13.754	96,174	103,161
Vonovia SE	23.248	0.00497609	4.816	1,238	1,715
alstria office Reit-AG	1.68	0.01435294	2.102	89	102
Bayer AG	9.32	0.00035003	2.846	35,088	42,239

Bechtle AG	13.252	0.00136512	1.836	1,723	2,580
Bertrandt AG	26.122	0.008093	1.738	429	871
Beiersdorf AG	12.64	0.00114049	1.732	6,194	6,285
BASF AG	14.466	0.00041773	2.574	63,873	74,326
Biotest AG	10.092	0.00369759	1.998	412	582
BMW	5.816	0.00044402	4.34	60,477	80,401
Brenntag AG	17.612	0.00038628	2.922	7,649	10,016
Hugo Boss AG	39.564	0.00172395	2.698	1,729	2,572
Borussia Dortmund GmbH & Co. KGaA	14.702	0.00522464	2.298	151	276
BayWa AG	7.6	0.00042383	5.084	7,903	15,381
Capital Stage AG	3.998	0.01962821	3.462	13	78
Celesio AG	2.802	0.00053503	3.348	23,278	22,326
Cancom SE	12.066	0.00294217	2.724	554	830
comdirect bank AG	11.49	0.00348159	22.964	291	353
Continental	13.294	0.00072451	3.346	26,047	34,506
CompuGroup Medical AG	5.382	0.0024466	3.65	319	515
CEWE Stiftung & Co. KGaA	14.09	0.0093645	2.294	473	524
Deutsche Börse	15.232	0.00576228	64.602	2,016	2,381
Deutsche EuroShop AG	7.278	0.00615423	2.484	144	201
Deutz AG	8.062	0.00179085	2.414	1,236	1,530
DIC Asset AG	2.452	0.00976111	3.462	143	180
Deutsche Post	15.598	0.00027088	3.496	51,481	56,630
Drillisch AG	22.344	0.01126897	2.35	362	290
Drägerwerk AG & Co. KGaA	10.094	0.0011885	2.858	2,177	2,435
Deutsche Telekom	0.846	0.00020077	4.206	62,421	62,658
Dürr AG	14.826	0.00254252	4.314	1,261	2,575
Deutsche Wohnen AG	7.35	0.00398529	2.93	469	952
E.ON	1.94	0.00014522	4.198	92,863	111,556
CTS EVENTIM AG	15.288	0.00364058	4.088	520	690
Evonik Industries AG	17.424	0.00082403	2.784	13,300	12,917
Evotec AG	-1.48	0.03364045	1.452	55	89
Fielmann AG	23.412	0.00743312	1.326	994	1,226
Fresenius Medical Care	8.604	0.00081506	2.496	13,822	15,832
Freenet AG	10.524	0.00280039	2.084	3,340	3,041
Fuchs Petrolub SE	29.058	0.00366613	1.466	1,459	1,866
Fraport AG	9.552	0.00243382	3.174	2,284	2,395
Fresenius	7.838	0.0008075	4.29	15,972	23,231
GEA Group AG	13.226	0.00112112	2.73	4,418	4,516
Bilfinger SE	7.494	0.00116409	3.644	8,007	7,697
GfK SE	3.204	0.00356022	2.6	1,294	1,453
DMG Mori Seiki AG	9.166	0.00434231	2.324	1,374	2,229
Grenkeleasing AG	2.46	0.01086667	6.128	134	195
Grammer AG	11.916	0.00163909	3.244	930	1,366
Gesco AG	9.186	0.00216703	2.328	335	455
Gerry Weber AG	21.308	0.00759742	1.406	622	852
Gerresheimer AG	9.914	0.00317597	2.978	1,025	1,290

Hamborner Reit AG	4.642	0.0215	2.092	28	52
Hornbach-Baumarkt-AG	6.542	0.00149657	2	2,836	3,357
Heidelberger Druckmaschinen AG	-7.786	0.00192716	6.402	2,598	2,334
HeidelbergCement	4.084	0.0017016	2.248	11,770	12,614
Henkel	12.112	0.00164013	2.042	15,092	16,428
Hamburger Hafen und Logistik AG	13.484	0.0024675	3.076	1,073	1,200
Hannover Rückversicherung AG	14.58	0.00037612	9.322	11,323	14,038
Hochtief AG	5.804	0.00035463	6.21	20,159	22,099
Infineon Technologies	18.034	0.00128565	1.682	3,820	4,320
Indus Holding AG	15.526	0.00171258	2.628	972	1,256
Jenoptik AG	13.472	0.00442373	2.042	479	590
Jungheinrich AG	13.262	0.0013767	3.496	1,816	2,498
Klöckner & Co SE	0.682	0.00072063	2.566	5,198	6,504
Krones AG	10.038	0.00135625	2.416	2,173	2,953
KUKA AG	12.666	0.00176002	4.116	1,079	2,096
Leoni AG	10.448	0.00177309	3.198	2,956	4,103
Lufthansa	4.354	0.0001688	4.604	27,324	30,011
Linde	6.27	0.000702	2.538	12,868	17,047
LPKF Laser & Electronics AG	21.724	0.01379167	2.114	81	120
Lanxess AG	16.828	0.000997	3.358	7,120	8,006
Manz AG	-7.382	0.00260692	1.762	211	318
MAN SE	5.234	0.00034138	3.526	14,675	14,286
Metro Group	12.462	1.6657E-05	5.626	65,529	63,035
MLP AG	7.5	0.0069548	4.08666667	523	531
MorphoSys AG	2.438		1.18	87	64
Merck	6.686	0.00255473	2.098	9,291	11,501
MTU Aero Engines AG	15.832	0.00238503	3.982	2,707	3,914
Munich Re	17.6	0.00043326	9.9	64,135	55,634
Nordex SE	-3.11	0.00150605	3.124	1,008	1,735
Nemetschek AG	19.038	0.00503211	1.714	150	218
Xing AG	9.234	0.0169596	2.004	53	99
Patrizia Immobilien AG	4.03	0.0109589	2.942	340	292
Pfeiffer Vacuum Technology AG	12.298	0.00334398	1.616	220	407
ProSiebenSat.1 Media SE	13.566	0.02455146	4.966	3,000	2,876
QSC AG	6.612	0.00310209	2.134	422	431
Rational AG	34.652	0.01279074	1.366	350	497
Rheinmetall AG	8.79	0.00069369	3.832	3,989	4,688
RIB Software AG	8.06	0.02762857	1.212	35	70
RWE	5.508	0.00023483	6.918	50,722	46,149
SMA Solar Technology AG	9.266	0.00373913	1.792	1,920	805
SAP	18.698	0.00156851	1.902	12,464	17,560
Ströer Media AG	21.64	0.00651179	3.334	531	721
STADA Arzneimittel AG	8.988	0.00109117	3.416	1,627	2,062
Stratec Biomedical AG	17.748	0.01084138	1.294	107	145
K+S	13.458	0.00264731	2.034	4,994	3,822
SAF-Holland S.A.	6.054	0.00246875	5.994	631	960

SGL Carbon SE	-4.984	0.00524401	2.786	1,382	1,336
Siemens	9.276	0.00039725	3.496	75,978	71,920
Sixt AG	10.624	0.00401225	3.756	1,538	1,796
Koenig & Bauer AG	-4.952	0.004	3.214	1,179	1,100
Schaltbau Holding AG	40.128	0.0051	4.348	280	430
Software AG	15.568	0.02001166	1.872	1,120	858
Axel Springer SE	15.996	0.00585912	2.53	2,894	3,038
Sartorius AG	7.574	0.00408305	3.092	121	891
Symrise AG	11.516	0.00248679	2.47	1,572	2,120
Salzgitter AG	-0.954	0.0005531	2.488	8,305	9,040
Südzucker AG	10.296	0.00048687	2.554	6,161	6,778
TAG Immobilien AG	4.59	0.00678053	3.526	83	565
ThyssenKrupp	-9.132	0.00026903	9.716	42,621	41,304
Talanx AG	33.25	0.00020315	19.6	18,753	23,844
Tom Tailor Holding AG	1.255	0.00708906	3.35	348	932
Takkt AG	12.214	0.00294082	2.286	802	980
United Internet AG	24.438	0.00240424	4.938	1,907	3,065
Villeroy & Boch AG	-1.934	0.00285369	3.308	715	745
Vossloh AG	1.758	0.00227341	3.42	1,351	1,324
Volkswagen Group	9.494	0.00023994	4.068	178,354	202,458
VTG AG	3.254	0.0037066	4.774	629	818
Wacker Neuson SE	6.014	0.00252336	1.378	758	1,284
Wacker Chemie AG	10.518	0.00137298	2.822	4,748	4,826
Wirecard AG	14.468	0.00774875	2.052	272	601
ElringKlinger AG	14.906	0.00444344	2.062	796	1,326
Zooplus AG	0.58	0.00452118	2.136	178	543

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne.

TSR30:30-Group

Name	Top30 =1; Bottom30=2
ADLER Real Estate AG	1
ProSiebenSat.1 Media SE	1
Sartorius AG	1
Vonovia SE	1
Patrizia Immobilien AG	1
Drillisch AG	1
Dürr AG	1
Xing AG	1
Nemetschek AG	1
KUKA AG	1
Capital Stage AG	1
RIB Software AG	1
Grenkeleasing AG	1
Wirecard AG	1
Nordex SE	1
Freenet AG	1
Cancom SE	1
United Internet AG	1
Deutsche Telekom	1
Continental	1
Deutsche Wohnen AG	1
Evonik Industries AG	1
Amadeus Fire AG	1
Bechtle AG	1
Fresenius	1
Villeroy & Boch AG	1
MorphoSys AG	1
Hannover Rückversicherung AG	1
Jenoptik AG	1
CompuGroup Medical AG	1
Südzucker AG	2
Gerry Weber AG	2
GfK SE	2
Wacker Neuson SE	2
QSC AG	2
Lanxess AG	2
Lufthansa	2
Bilfinger SE	2
Vossloh AG	2
ElringKlinger AG	2
Manz AG	2
Heidelberger Druckmaschinen AG	2
Hornbach-Baumarkt-AG	2

ThyssenKrupp	2
LPKF Laser & Electronics AG	2
SGL Carbon SE	2
E.ON	2
Metro Group	2
Deutz AG	2
MLP AG	2
SMA Solar Technology AG	2
Wacker Chemie AG	2
K+S	2
Hamburger Hafen und Logistik AG	2
Salzgitter AG	2
Klöckner & Co SE	2
RWE	2
Software AG	2
Aixtron SE	2
Tom Tailor Holding AG	2

Annex III. Survey Documentation

Since the survey was expressly declared confidential, the names of the experts are not included in the following list.

Company Name of the Supervisory Board Member Surveyed	Date of Interview
Adler Real Estate AG	25.09.2015
Aixtron SE	15.10.2015
Bechtle AG	16.10.2015
Bilfinger SE	06.10.2015
Bilfinger SE	23.10.2015
Capital Stage AG	20.09.2015
Capital Stage AG	23.09.2015
Continental AG	23.10.2015
Deutsche Börse AG	15.10.2015
Deutsche Telekom AG	08.10.2015
Deutsche Wohnen AG	22.09.2015
Amadeus Fire AG	23.09.2015
E.ON	12.10.2015
ElringKlinger AG	25.09.2015
Evonik AG	08.10.2015
Fresenius AG	07.10.2015
Geenke Leasing AG	23.09.2015
GfK SE	07.10.2015
Hamburger Hafen und Logistik AG	06.10.2015
Manz AG	21.09.2015
Klöckner&Co.	15.10.2015
Kuka AG	27.10.2015
Kuka AG	05.10.2015
LPKF Laser & Electronics AG	22.09.2015
Manz AG	21.09.2015
Kuka AG	21.09.2015
Lanxess AG	19.10.2015
Salzgitter AG	17.09.2015
SAP AG	12.10.2015
SGL Carbon SE	14.10.2015
Software AG	28.10.2015
ThyssenKrupp	08.10.2015
United Internet AG	23.09.2015

Annex IV. Studies with Positive Effects of Governance Characteristics on Performance Published or Based on the Observation Period prior to 2005

- Eisenberg, T., Sundgren, S., & Wells, M. (1998). Larger Board Size and Decreasing Firm Value in Small Firms. *Journal of Financial Economics*, 48, 35-54.

- Hossain, M., Cahan, S. F., & Adams, M. B. (2000). The investment opportunity set & the voluntary use of outside directors: new zeal & evidence. *Accounting & Business Research*, 30(4), 263-273.

- Demsetz, H., & B. Villalonga (2001). Ownership Structure and Corporate Performance. *Journal of Corporate Finance*, 7, 209-233.

- Chung, K. H, Wright, P., & Kedia, B. B. (2003). Corporate Governance, & Market Valuation of Capital, & R, & D Investment. *Review of Financial Economics*, 12, 161-172.

- Callahan, W. T., Millar, J. A., & Schulman, C. (2003). An analysis of the effect of management participation in director selection on the long-term performance of the firm. *Journal of Corporate Finance*, 9(2), 169-181.

- Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, 116(1), 107-155.

- Mak, Y., & Kusnadi, Y. (2005). Size really matters: Further evidence on the negative relationship between board size and firm value. *Pacific-Basin Finance Journal*, 13, 301-318.

- Krivogorsky, V. (2006). Ownership, board structure, & performance in continental Europe. in *The International Journal of Accounting*, 41(7), 176-197.

- Brown, L. D., & Caylor, M. L. (2006). Corporate governance and firm valuation. *Journal of Accounting and Public Policy*, 25, 409-430.

- Abdul Rahman, R., & Mohamed Ali, F.H. (2006). Board, audit committee, culture and earnings management: Malaysian evidence. *Managerial Auditing Journal*, 21(7), 783-780.

- Nicholson, G. J., & Kiel, G. C. (2007). Can Directors Impact Performance? A case-based test of three theories of corporate governance. *Corporate Governance*, 15(4), 585-608.

- Larcker, D., Richardson, S., & Tuna, I. (2007). Corporate governance, accounting outcomes, and organizational performance. *The Accounting Review*, 82, 963-1008.

- Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance*, 14, 257-273.

- Sunday, O. K. (2008). Corporate governance and firm performance: The Case of Nigerian Listed firms. E*uropean Journal of Economics, Finance and Administrative Sciences*, 14, 16-28.

- Daines, R., Gow, I., & Larcker, D. (2008). Rating the ratings: How good are commercial governance ratings? *Journal of Financial Economics* (JFE), 98(3), 439-461.

- Carline, N. F., Linn, S. C., & Yadav, P. K. (2009). Operating performance changes associated with corporate mergers and the role of corporate governance. *Journal of Banking, & Finance*, 33, 1829-1841.

- Renders, A., Gaeremynck, A., & Sercu, P. (2010). Corporate Governance and Performance: Controlling for Sample Selection Bias and Endogeneity. *Corporate Governance*, 18(2), 87-106.

Annex V. Studies with Negative or Neutral Effect of Governance on Performance Published or Based on the Observation Period prior to 2005

- Hutchinson, M. (2002). An Analysis of the Association between Firms' Investment Opportunities, Board Composition, and Firm Performance. *Asia Pacific Journal of Accounting and Economics*, 9, 17-39.

- Bauer, R., Gunster, N., & Otten, R. (2004). Empirical evidence on corporate governance in Europe: The effect on stock returns, firm value, and performance. *Journal of Asset Management*, 5, 91–104.

- Giroud, X., & Mueller, H. M. (2010). Does corporate governance matter in competitive industries? *Journal of Financial Economics*, 95, 312–331.

- Grove, H., Patelli, L., Victoravich, L. M., & Xu, P. (2011). Corporate Governance and Performance in the Wake of the Financial Crisis: Evidence from U.S. Commercial Banks. *Corporate Governance*, 19(5), 418–436.

- Brenes, E. R., Madrigal, K., & Requena, B. (2011). Corporate governance and family business performance. *Journal of Business Research*, 64, 280-285.

- Engelen, P. J., Berg, A., & Laan, G. (2012). Board Diversity as a Shield during the Financial Crisis. In S. Boubaker, B. D. Nguyen (Eds.), *Corporate Governance: Recent Developments and New Trends* (pp. 259-287). Dordrecht: Springer.

- Castaner, X., & Kavadis, N. (2013). Does Good Governance prevent bas strategy? A study of corporate governance, financial diversification, and value creation by French corporations, 2000-2006. *Strategic Management Journal*, 34, 863-876.

- Shank, T., Hill, R. P., & Stang, J. (2013). Do investors benefit from good corporate governance? *The International Journal of Business in Society*, 13(4), 384 – 396.

- Gupta, K., Chandrasekhar, K., & Tourani-Rad, A, (2013). Is corporate governance relevant during the financial crisis? *Journal of International Financial Markets, Institutions and Money*, 23, 85-110.

Annex VI. List of all Variables and Detailed Description

Variable Label	Description/Explanatory Note	Indication
5-y TSR Growth in %	5-Years Total Shareholder Return Growth Rate (AAGR) "Total returns calculated on a calendar-year basis. Total return includes both income (in the form of dividends or interest payments) and capital gains or losses (the increase or decrease in the value of a security)." (Morningstar, 2015, Data Definitions. Chicago: Morningstar, Inc., p. 30) Source: Morningstar Direct Database calculated as AAGR (Morningstar, 2016, Data Definitions. Chicago: Morningstar, Inc., p. 30)	Performance Indicator in Terms of Shareholder Interest Fulfillment: The higher the TSR growth, the higher is the return on invested capital for shareholders.
5-y Rev. Growth in %	5-Years Revenue Growth Rate (AAGR) Source: Morningstar Direct Database calculated as AAGR, (Morningstar, 2015, Data Definitions. Chicago: Morningstar, Inc., p. 25)	Performance Indicator in Terms of Market Success of Management Activities (also: Other Stakeholder Interest Fulfillment in Terms of Employment Effect): The higher the revenue growth the higher is the company's market performance
Sup. Board Size (Number)	Supervisory Board Size in 2010 Source: Extracted from annual reports Many prior studies – as mentioned – have included board size as variable	Indicator for Monitoring Quality. Assumption: The larger the board size, the higher is the board capacity for monitoring tasks.
Exec. Board Size (Number)	Executive Board Size in 2010 Source: Extracted from annual reports Many prior studies – as mentioned – have included board size as variable	Control Variable included because of prior research Assumption: The larger the board size, the higher is the board capacity for monitoring tasks.
Sup. Board Comp. TEUR (Total Amount)	Supervisory Board Compensation paid in 2010 as Total Amount Source: Extracted from annual reports	Control Variable included because of prior research Assumption: The total amount is mainly an effect of the number of board members.

Exec. Board Comp. TEUR (Total Amount)	Executive Board Compensation payed in 2010 as Total Amount Source: Extracted from annual reports	Control Variable included because of prior research Assumption: The total amount is mainly an effect of the number of board members.
Number Board Meetings (Total Number)	Total Number of Board Meetings in 2010 Source: Extracted from annual reports	Board Quality Variable included because of prior research Assumption: The higher the number of meetings, the better is the monitoring quality
Number of Committees	Total Number of Committees in 2010 Source: Extracted from annual reports	Indicator for Monitoring Quality Assumption: The higher the number of committees, the higher is the monitoring quality and thus firm performance, profitability and shareholder return.
Nomination Committee (yes=1, no=0)	Existence of a Nomination Committee in 2010 Source: Extracted from annual reports	Indicator for Monitoring Quality Assumption: The existence of a nomination committee leads to a methodological nomination process and thus to higher performance.
Audit Committee (yes=1, no=0)	Existence of an Audit Committee in 2010 Source: Extracted from annual reports	Indicator for Monitoring Quality Assumption: The existence of an audit committee leads to higher risk management and a higher compliance with accounting laws protecting shareholder and stakeholder rights.
Strategy Committee ((yes=1, no=0)	Existence of a Strategy Committee in 2010 Source: Extracted from annual reports	Indicator for Monitoring Quality Assumption: The strategy committee monitors continuously the fulfillment of strategic targets which are settled by the supervisory board and the CEO.
Numb. SB-Members with oth. Mandates	Number of Supervisory Board Members with Mandates also in other Companies in 2010 Source: Extracted from annual reports	'Busy Directors' Indicator Assumption: The higher the number of other mandates the lower is the monitoring quality.
Numb. of	Number of Total Exceptions to the	Indicator for the total compliance with the

Except. § 161 AktG	German Corporate Governance Code in 2010 Source: Extracted from compliance declarations	German Corporate Governance Model Assumption: The higher the compliance with the German Corporate Governance Model, the higher is the performance in terms of shareholder return, revenue growth and profitability
Numb. of Except. DCGK § 3	Number of Total Exceptions to the German Corporate Governance Code in 2010 It was found that almost all exceptions to DCGK § 3 are made concerning the risk liability (§ 3.8) Source: Extracted from compliance declarations	Indicator for risk liability and risk responsibility Assumption: Taking the regulator's perspective it must be assumed, that the higher the risk liability, the higher is the performance in terms of shareholder return, revenue growth and profitability
Numb. of Except. DCGK § 5	Number of Total Exceptions concerning § 5 regulating duties, responsibilities, the formation of committees, the composition of the supervisory board and its compensation Source: Extracted from compliance declarations	Indicator of the division of labor within the supervisory board and board quality Assumption: Taking the regulator's perspective it must be assumed, that the higher the compliance with this essential part of the DCGK, the higher should be the performance in terms of shareholder return, revenue growth and profitability.
Except. DCGK § 5.3.2 (yes=1, no=0)	This paragraph regulates the establishment of an audit committee and the requirement for specialist knowledge and experience in the board room Source: Extracted from compliance declarations	Indicator for the establishment of an audit committee Assumption: Taking the regulator's perspective it must be assumed that the accounting process and thus compliance risks are reduced. Thus, it can be assumed that the compliance with this paragraph reduces accounting risks and increases the risk management quality leading to a higher performance.
Except. DCGK § 5.3.3 (yes=1, no=0)	§ 5.3.3 of the German Corporate Governance Code (DCGK) determines that the supervisory board shall install a nomination committee composed exclusively of shareholder	Indictor for the establishment of a standardized and objective nomination procedure. Assumption: Taking the regulator's

	representatives. Source: Extracted from compliance declarations	perspective it must be assumed that the nomination committee leads to higher monitoring quality resulting in a higher shareholder return, revenue growth and profitability.
Except. to DCGK Zif. 5.4.2 (yes=1, no=0)	§ 5.4.2 of the German Corporate Governance Code (DCGK, 2015) rules that the supervisory board should include an adequate number of independent members. Source: Extracted from compliance declarations	Board Independence Indicator Assumption: Supervisory board members should not be affiliated with top executives of the firm and should have only minimal business dealings with the company to avoid potential conflicts of interests. Taking the regulator's perspective, it must be assumed that board independence leads a higher monitoring objectivity (quality) resulting in a higher shareholder return, revenue growth and profitability.
Except. DCGK § 5.4.6 Abs. 2, (yes=1, no=0)	An exception to this rule shows, that the supervisory board compensation is not linked to corporate performance. Source: Extracted from compliance declarations	Indictor for a performance-dependent supervisory board member compensations scheme Assumption: Taking the regulator's perspective, it must be assumed that performance-dependent compensations schemes should increase firm performance parameters.
5y Average ROIC	5-years average of the Financial Leverage (mean value all ROIC values of the five years included in the observation period) Source: Thomson One Datastream	Capital Efficiency Indicator (Performance Indicator) Assumption: Corporate governance compliance, higher board compensation, higher board quality, etc. should increase the firm's profitability.
Rev. Share Mgment Costs	Calculate as the share of the total executive board compensation in the revenue base on the fiscal year 2010 Own calculation based on Thomson One Datastream and annual report data	Incentivisation Efficiency Indicator Assumption: The higher the ratio, the higher the values of firm performance indicators.
5y Average	5-years average of the Financial	Risk Indicator

Fin. Lev.	Leverage (mean value) Source: Thomson One Datastream	No assumption. This indicator may provide additional evidence concerning single governance variables and risk behavior.
Revenue 2010	Firm Size as Control Variable Source: Thomson One Datastream	Firm Size Indicator as Control Variable concerning board size, compensation, number of committees Assumption: The larger the firm, the higher the number of board members, compensation amount, etc. Prior research has identified firm size effects so that particularly the multiple regression analysis needs firm size as control variable to filter out governance variables with a high correlation with firm size.
Revenue 2014 (EUR Mil)	Firm Size Indicator Source: Thomson One Datastream	Not included in the statistical tests. Only used in qualifying the sample in comparison with the S&P 500 and the German GDP of 2014 to qualify the representativeness.

Annex VII. SPSS Syntax

Multiple Regression Analysis SPSS Syntax

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Revenue 2010 EUR Mil, 5y Average ROIC, 5-y Rev. Growth[b]		Enter
2	Excep. DCGK § 3 (yes=1, no=0)		Stepwise (Criteria: Probability-of-F-to-enter <= ,050, Probability-of-F-to-remove >= ,100).

a. Dependent Variable: 5-y TSR Growth

b. All requested variables entered.

Notes

Output Created		14-NOV-2015 10:15:24
Comments		
Input	Active Dataset	DataSet6
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	128
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /DESCRIPTIVES MEAN STDDEV CORR SIG N /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA CHANGE ZPP /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT @5yTSRGrowth /METHOD=ENTER @5yAverageROIC @5yRev.Growth Revenue2010EURMil /METHOD=STEPWISE Sup.BoardSize Exec.BoardSize NumberBoardMeetings NumberofComittees Nominationcommitteeyes1no0 AuditCommitteeyesno StrategyCommitteeyes1no0 Excep.§161AktGRanked Excep.DCGK§3yes1no0 Excep.DCGK§5Ranked ExeptionstoDCGKZif.5.4.2yes1no0 Excep.DCGK§5.4.6Abs.2yes1no0 Rev.ShareMgmentCosts.
Resources	Processor Time	00:00:00,03
	Elapsed Time	00:00:00,03
	Memory Required	20096 bytes
	Additional Memory Required for Residual Plots	0 bytes

Annex VIII. Descriptive Statistics Total Sample

	N Valid	Mean	Median	Mode	Standard Deviation	Min.	Max.	Sum
5-y TSR Growth	128	14.46	13.30	#	18.42	-26.96	94.20	1850.29
5-y Rev. Growth	128	8.67	7.18	3.07[a]	11.53	-15.54	99.40	1110.23
Sup. Board Size	128	10.94	10.00	6.00	5.79	3.00	25.00	1400.00
Exec. Board Size	128	4.34	4.00	3.00	1.81	2.00	10.00	556.00
Sup. Board Compensation	128	844.02	467.00	135.00	977.47	15.00	5348.00	108034
Exec. Board Compensation	128	6464.48	3456.50	2600	7260.26	299.00	37836.00	827453
Number Sup.Board Meetings	128	5.63	5.00	4.00	2.08	2.00	15.00	720.00
Number Committees	128	2.98	3.00	4.00	1.89	0.00	8.00	381.00
Nomination Committee (yes/no)	128	0.63	1.00	1.00	0.48	0.00	1.00	81.00
Audit Committee (yes/no)	128	0.78	1.00	1.00	0.42	0.00	1.00	100.00
Strategy Committee (yes/no)	128	0.20	0.00	0.00	0.40	0.00	1.00	26.00
Number SB-Members with oth. Mandates	128	5.86	5.00	0.00	5.23	0.00	20.00	750.00
Numb. Excep. § 161 AktG	128	4.90	4.00	0.00	4.19	0.00	23.00	627.00
Numb. Excep. DCGK § 3	128	0.60	1.00	1.00	0.67	0.00	5.00	77.00
Numb. Excep. DCGK § 5	128	2.20	2.00	0.00	2.17	0.00	10.00	281.00
Excep. DCGK § 5.3.2 (yes/no)	128	0.24	0.00	0.00	0.43	0.00	1.00	31.00
Except. DCGK § 5.3.3 (yes/no)	128	0.34	0.00	0.00	0.48	0.00	1.00	44.00
Except. DCGK Zif. 5.4.2 (yes/no)	128	0.03	0.00	0.00	0.17	0.00	1.00	4.00
Excep. DCGK § 5.4.6 Abs. 2, (yes/no)	128	0.30	0.00	0.00	0.46	0.00	1.00	38.00
5y Average ROIC	128	10.60	9.98	#	8.79	-9.13	40.13	1356.92
Rev. Share Mgment Costs	127	0.00	0.00	#	0.01	0.00	0.03	0.58
5y Aerage Financ. Lev.	128	3.95	2.80	3.50	6.13	1.18	64.60	505.74
Revenue 2010 EUR Mil	128	10592.54	1363.50	#	26718.87	13.00	178354.00	1355805

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Annex IX. Descriptive Statistics Total Shareholder Return Groups

TSR Top-30 Group

	N Valid	Mean	Median	Mode	Standard Deviation	Min.	Max.	Sum
5-y TSR Growth	30	38.2	32.3	25.00	15.2	25.0	94.2	1147.5
5-y Rev. Growth	30	12.2	10.5	-15.54	19.3	-15.5	99.4	365.1
Sup. Board Size	30	9.2	7.5	6.0	5.4	3.0	21.0	277.0
Exec. Board Size	30	3.7	3.0	3.0	1.8	2.0	8.0	112.0
Sup. Board Compensation	30	519.5	264.5	389.0	611.7	34.0	2399.0	15585.0
Exec. Board Compensation	30	3448.8	2103.5	299.0	4040.4	299.0	15116.0	103463.0
Number Sup.Board Meetings	30	5.4	4.5	4.0	2.3	4.0	15.0	162.0
Number Committees	30	2.4	3.0	.0a	2.0	0.0	7.0	71.0
Nomination Committee (yes/no)	30	0.5	0.5	.0a	0.5	0.0	1.0	15.0
Audit Committee (yes/no)	30	0.7	1.0	1.0	0.5	0.0	1.0	20.0
Strategy Committee (yes/no)	30	0.2	0.0	0.0	0.4	0.0	1.0	5.0
Numb. SB-Members with oth. Mandates	30	5.0	4.0	0.0	4.6	0.0	17.0	149.0
Numb. Excep. § 161 AktG	30	6.2	6.0	8.0	3.5	0.0	14.0	185.0
Numb. Excep. DCGK § 3	30	0.8	1.0	1.0	0.9	0.0	5.0	25.0
Numb. Excep. DCGK § 5	30	2.9	3.0	.0a	2.1	0.0	8.0	87.0
Excep. DCGK § 5.3.2 (yes/no)	30	0.4	0.0	0.0	0.5	0.0	1.0	11.0
Except. DCGK § 5.3.3 (yes/no)	30	0.5	0.5	0a	0.5	0.0	1.0	15.0
Except. DCGK Zif. 5.4.2 (yes/no)	30	0.1	0.0	0.0	0.3	0.0	1.0	2.0
Excep. DCGK § 5.4.6 Abs. 2, (yes/no)	30	0.4	0.0	0.0	0.5	0.0	1.0	12.0
5y Average ROIC	30	11.1	11.3	#	8.5	-3.1	36.3	333.9
Rev. Share Mgment Costs	29	0.0	0.0	#	0.0	0.0	0.0	0.2
5y Average Financ. Lev.	30	3.3	3.1	3.1	1.7	1.2	9.3	99.6
Revenue 2010 EUR Mil	30	5792.2	860.5	64.00	13220.4	64.0	62658.0	173765.0

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

TSR Bottom-30 Group

	N Valid	Mean	Median	Mode	Std. Deviation	Min.	Max.	Sum
5-y TSR Growth	30	-8.0	-8.1	-26.96	8.1	-27.0	2.4	-238.6
5-y Rev. Growth	30	6.1	3.7	-8.54	9.1	-8.5	31.3	183.0
Sup. Board Size	30	12.3	13.0	6.0	6.4	3.0	25.0	369.0
Exec. Board Size	30	4.5	4.5	3.0	1.5	2.0	7.0	135.0
Sup. Board Compensation	30	1085.1	549.5	39.0	1161.3	39.0	4857.0	32554.0
Exec. Board Compensation	30	6890.6	5808.0	944.0	5436.7	944.0	20358.0	206718.0
Number Sup.Board Meetings	30	5.5	5.0	4.0	2.0	4.0	12.0	166.0
Number Committees	30	3.5	4.0	4.0	1.5	0.0	6.0	104.0
Nomination Committee (yes/no)	30	0.7	1.0	1.0	0.4	0.0	1.0	22.0
Audit Committee (yes/no)	30	0.9	1.0	1.0	0.3	0.0	1.0	27.0
Strategy Committee (yes/no)	30	0.2	0.0	0.0	0.4	0.0	1.0	5.0
Numb. SB-Members with oth. Mandates	30	7.4	6.0	7.0	6.1	0.0	19.0	222.0
Numb. Excep. § 161 AktG	30	4.4	4.0	.0a	4.1	0.0	16.0	133.0
Numb. Excep. DCGK § 3	30	0.5	0.0	0.0	0.7	0.0	3.0	15.0
Numb. Excep. DCGK § 5	30	2.2	1.0	.0a	2.5	0.0	10.0	67.0
Excep. DCGK § 5.3.2 (yes/no)	30	0.1	0.0	0.0	0.3	0.0	1.0	4.0
Except. DCGK § 5.3.3 (yes/no)	30	0.3	0.0	0.0	0.4	0.0	1.0	8.0
Except. DCGK Zif. 5.4.2 (yes/no)	30	0.1	0.0	0.0	0.3	0.0	1.0	2.0
Excep. DCGK § 5.4.6 Abs. 2, (yes/no)	30	0.3	0.0	0.0	0.4	0.0	1.0	8.0
5y Average ROIC	30	6.3	6.6	#	8.1	-9.1	21.7	188.0
Rev. Share Mgment Costs	30	0.0	0.0	#	0.0	0.0	0.0	0.1
5y Average Financ. Lev.	30	3.2	2.6	#	1.9	1.3	9.7	96.4
Revenue 2010 EUR Mil	30	11963.8	1491.5	120.00	24371.4	120.0	111556.0	358913.0

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Annex X. T-Test Corporate Governance Characteristics 2010 vs. 2014

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	Sup. Board Size 2010 - Sup. Board Size 2014	.04	2.16	.19	-.34	.42	.20	127.00	.84
Pair 2	Total SB compensation TEUR 2010 - Total SB compensation TEUR 2014	-263.74	812.41	72.09	-406.40	-121.07	-3.66	126.00	.00
Pair 3	Number Sup.Board Meetings 2010 - Number Sup.Board Meetings 2014	-.12	2.27	.20	-.51	.28	-.58	127.00	.56
Pair 4	Number of Comittees 2010 - Number of Comittees 2014	-.02	.81	.07	-.17	.12	-.33	126.00	.74
Pair 5	Nomination committee (yes/no) 2010 - Nomination committee (yes/no) 2014	-.03	.25	.02	-.07	.01	-1.42	127.00	.16
Pair 6	Audit Committee (yes/no) 2010 - Audit Committee (yes/no) 2014	-.05	.30	.03	-.10	.01	-1.75	127.00	.08
Pair 7	Strategy Committee (yes/no) 2010 - Strategy Committee (yes/no) 2014	-.05	.30	.03	-.10	.01	-1.75	127.00	.08
Pair 8	Numb. SB-Members with oth. Mandates 2010 - Numb. SB-Members with oth. Mandates 2014	-.01	2.23	.20	-.40	.38	-.04	126.00	.97
Pair 9	Numb. Excep. § 161 AktG 2010 - Numb. Excep. § 161 AktG 2014	.44	2.46	.22	.01	.87	1.01	127.00	.10
Pair 10	Numb. Excep. DCGK § 3 2010 - Numb. Excep. DCGK § 3 2014	.20	.57	.05	.10	.30	1.06	127.00	.23
Pair 11	Numb. Excep. DCGK § 5 2010 - Numb. Excep. DCGK § 5 2014	.03	1.83	.16	-.29	.35	.19	127.00	.85
Pair 12	Excep. DCGK § 5.3.2 (yes/no) 2010 - Excep. DCGK § 5.3.2 (yes/no) 2014	.00	.49	.04	-.09	.09	.00	127.00	1.00
Pair 13	Except. DCGK § 5.3.3 (yes/no) 2010 - Except. DCGK § 5.3.3 (yes/no) 2014	.01	.49	.04	-.08	.09	.18	127.00	.86
Pair 14	Except. DCGK Zif. 5.4.2 (yes/no) 2010 - Except. DCGK Zif. 5.4.2 (yes/no) 2014	-.04	.29	.03	-.09	.01	-1.52	126.00	.13
Pair 15	Excep. DCGK § 5.4.6 Abs. 2, (yes/no) 2010 - Excep. DCGK § 5.4.6 Abs. 2, (yes/no) 2014	.07	.62	.05	-.04	.18	1.29	127.00	.20

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.

Annex XI. Excluded Variables of the Multiple Regression Analysis

Excluded Variables of Model 2 (Total Sample)

Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics: Tolerance
2	Sup. Board Size	,020[c]	.213	.832	.019	.676
	Exec. Board Size	-,020[c]	-.196	.845	-.018	.581
	Number Board Meetings	-,083[c]	-1.049	.296	-.095	.966
	Number of Comittees	-,035[c]	-.375	.709	-.034	.692
	Nomination Committee (yes=1, no=0)	,026[c]	.296	.768	.027	.796
	Audit Committee (yes/no)	-,040[c]	-.455	.650	-.041	.782
	Strategy Committee (yes=1, no=0)	-,036[c]	-.451	.653	-.041	.947
	Excep. § 161 AktG (Ranked)	-,003[c]	-.026	.980	-.002	.565
	Excep. DCGK § 5 (Ranked)	,025[c]	.274	.785	.025	.747
	Exeptions to DCGK Zif. 5.4.2 (yes=1, no=0)	,050[c]	.609	.544	.055	.891
	Excep. DCGK § 5.4.6 Abs. 2, (yes=1, no=0)	,030[c]	.375	.708	.034	.921
	Rev. Share Mgment Costs	,054[c]	.655	.514	.059	.904

Dependent Variable: 5y-TSR Growth. Predictors in the Model: (Constant), Revenue 2010 EUR Mil, 5y Average ROIC, 5-y Rev. Growth, Excep. DCGK § 3 (yes=1, no=0)

Source: Author's calculations; presentation:SPSS output tables; based on data from annual reports and ThomsonOne. Abbreviations: See the List of Abbreviations.