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School of Economics and Management

Determinants of Chairman Compensation

An Empirical Analysis on German Large Caps

Master of Science in Corporate & Financial Management

Authors Dorothea Agricola
Marc-André Greiner

Supervisor Lars Oxelheim

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Abstract

This study examines the determinants of chairman compensation in supervisory boards. The research is based on a sample of the 30 German DAX firms and focuses on the positive relationship of chairman compensation depending on CEO compensation. We investigate upon possible cronyism influencing the compensation setting process of chairmen. This paper takes a new, reversed approach on the topic, as in previous research the emphasis was on the ability of chairmen influencing CEO wages. A regression model is used to analyze causality, identify evidence and draw conclusions regarding the influence of increases of CEO compensation on chairman compensation. According to our research it can be concluded that there is a positive relationship between CEO and chairman compensation. We cannot find a distinct proof of cronyism between chairmen and CEOs though.

Keywords: German Corporate Governance System, Chairman Compensation, Cronyism, DAX30, Two-Tier Supervisory Boards.

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1 Introduction

'I'm distancing myself from Martin Winterkorn (Volkswagen CEO)'
(Ferdinand Piech, Chairman of the VW supervisory board, 10/04/2015)

This recent quote was quite a surprise to the public and VW's stakeholders as the relationship between the two managers was supposed to be tight and they shared a long history together in the company. Martin Winterkorn was even supposed to replace Piech as the chairman[1] of VW's supervisory board after 2017. This tension between a Chief Executive Officer (CEO) and a chairman is not typical in German firms as it is quite common that former managers become chairman of the supervisory board at the end of their career. Usually the media regards the relationship of the institutions as close and a constructive working and monitoring environment can be recognized. This perception is strengthened, by Mats Isaksson's (2015) view *'(…) this dispute is unusual for German Corporate Governance Systems and doesn't reflect the common relation between chairman and CEO'*.[2] The institutional role of the supervisory board incorporates the appointment of the managers. In the Volkswagen case Ferdinand Piech wanted to make use of the 'Hiring & Firing' role, when proposing Martin Winterkorn to step down. Since 50% of the German supervisory board members are employees and voted in favor of CEO Martin Winterkorn, he stayed in his position and finally Ferdinand Piech stepped down from his chairman position himself. This unusual outcome puts emphasis on the specialty of **German board structures** and the CEO chairman relationship.

To introduce another dimension into this relation framework; in the past years CEO compensation debates arose internationally and the public eye focused on the relationship between CEO and chairmen. Cronyism accuses between the two tiers of the board arose. In this paper cronyism can be described as a dependence relation where the actions of the two related managers cannot to be regarded as independent anymore. In general, the supervisory board is responsible for setting the CEO remuneration. Especially in the sense of the 'Hiring & Firing' and 'Say on Pay' framework 'mutual back scratching' between the two is interesting. The following study will concentrate on determinants of **chairman remuneration** on the one hand and analyze the **cronyism relation** and its effects on chairman remuneration on the other hand. A previous study by Oxelheim & Clarkson (2014) on the relationship between chairman and

[1] If the masculine grammatical form is used in the paper this is due to improved readability issues and statements include the female gender as well.
[2] Mats Isakkson, Head of Corporate Affairs at the OECD, was met at the 17th SNEE on 22nd of May 2015.

CEO compensation proved the existence of cronyism between the two institutions in Sweden. The rationale behind the research idea is that the CEO will reimburse the chairman for its risen salary with a raise of the chairman compensation.

To conduct a study regarding the determinants of chairman compensation and possible cronyism the country specifics in the relation and legal origin of the governance system have to be taken into consideration. First of all this is due to the fact that the German system is diverging from the Anglo-Saxon system and the Mixed Swedish system, where chairman duality is allowed. The two-tier board structure is unique compared to other western countries through other reasons as well. The board of directors with mainly outside directors is separated from the management board and therefore two tiers exist. German companies have been hit by corporate scandals and a binding code for public firms was introduced in 2002. This evolvement is in line with that of other western countries that reacted to the scandals of the 1990s and early 2000s. Previous failures in the monitoring role of boards are reasons to set up codes (Oxelheim & Clarkson, 2014). In Germany the executive board elects the chairman and suggests chairman compensation to the annual general meeting. It is the supervisory board's duty to approve the CEO compensation.

Second of all, empirical determinants of chairman remuneration in connection with cronyism have not been analyzed in Germany. In the USA (Brick, Palmon, & Wald, 2002), the UK (Chen, 2014) and Sweden (Oxelheim & Clarkson, 2014) research has been conducted. The **purpose of this research** is to fill the research gap in Germany. Oxelheim & Clarkson's (2014) analysis provides an econometric framework for orientation, building the point of departure for our study (Table A 7: Matrix: Defining the Research Gap). The research is bound to some **limitations** regarding to country, time and restrictions of the econometric model. First of all the outcomes are only applicable to the German Large caps listed in the DAX30. Second of all, the period under consideration ranges from 2006 to 2014. Going back in time further is not applicable, as companies were not obliged to explicitly disclose CEO compensation.

The **outline** of the thesis is presented in the following. Section 2 THEORETICAL REVIEW consists of a review on theories ascribed to director and chairman compensation. The German Corporate Governance System is pictured and the role and tasks of the supervisory board are clarified. The section ends with a review on the recent research topics on determinants of chairman remuneration. In section 3 METHODOLOGY our hypotheses are stated and the research approach and design inclusive data collection and econometric model is presented. Chapter 4

REGRESSION ANALYSIS & DISCUSSION is dedicated to the analysis of results, discussion and robustness analysis. In chapter 5 CONCLUSION a summary of the findings and policy and future research implications are given.

2 Theoretical Review

2.1 Corporate Governance & Supervisory Board Structures

In the past years 'Corporate Governance' has become a fashionable buzzword and is often used in media when corporate scandals or compensation issues are discussed, many times without empirical evidence and in combination with weak polemic arguments. From a scientifically perspective corporate governance, arising from the conflict between the separation of ownership and control (Berle & Means, 1932), can be classified into different fields of business administration and economics. In this study, the concept of corporate governance is regarded as a field of finance. This is in line with Shleifer & Vishny's (1997:737) classification of corporate governance and the risk perspective, where *'corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment'*. Furthermore, this is mainly influenced by the type of empirical study conducted and inspired by the research field of the advising professor Lars Oxelheim. The board of directors is one of the main formal corporate governance mechanisms and its functions within the corporate governance system differ a lot among the legal origins (La Porta, Lopez-de-Silanes, & Shleifer, 2008) and countries. In the following, the two main common board structures and their characteristics are discussed in order to draw a comparison between the German and the Swedish system.

2.1.1 Outsider System

The Anglo-American board is a one-tier system and the board consists of the management and non-executive directors. The system has spread from the UK to former British colonies like the USA and New Zealand (La Porta, Lopez-de-Silanes, & Shleifer, 2008). The system is characterized as follows: the investors are provided with a high degree of protection, mainly institutional investors are present, dispersed ownership (La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000), no employees on the board, low bank influence and the possibility of chairman duality. It is described as an Outsider System because the corporate governance mechanisms from outside, in other words the market, are determining (Andreas, 2011). The Anglo-American system developed departing from the common law system, which stands for a social control that seeks to support private market outcomes and solutions. Other systems are mainly influenced by the French civil law, which has a state-desired allocation and policy

implementing approach (La Porta, Lopez-de-Silanes, & Shleifer, 2008). Typical for the Anglo-American shaped system is furthermore a one-tier board, where control and management functions are not separated (Andreas, 2011).

2.1.2 Insider System

The Insider System, as prevalent in Germany, is influenced by the civil and common law. It can be described as a hybrid of the two main legal origin systems. The corporate governance mechanisms are influenced by commercial banks and chairman duality is not possible, whereas codetermination of employees plays an important role. Often large block holders are prevalent so there is a strong incentive to monitor the management decisions. Because the influence of the investors and capital markets is lower compared to the Anglo-American system, the 'inside' corporate governance instruments are of a more crucial role (Andreas, 2011). The two-tier board structure in Germany with a separation of bodies into executive and supervisory board is viewed from a critical perspective in regards to a close communication between the directors, which is easier in the Anglo-American board structure. Deviating from the classical Insider System, the Swedish Corporate Governance System is called 'Mixed System' (Heindrick & Struggles, 2009) and allows for an executive member on the supervisory board (Swedish Corporate Governance Board, 2010). The likelihood of chairman duality is, although not specifically forbidden relatively unlikely (Oxelheim & Clarkson, 2014). Codetermination can make up 1/3 of the board (Swedish Corporate Governance Board, 2010) and block- & family ownership is also shaping such as the strong stakeholder focus and extraordinary transparency towards them (Heindrick & Struggles, 2009).

2.1.3 Types of Directors

One cannot only distinguish between the different board systems but also between different kinds of directors. Primarily a differentiation can be done between outside and inside directors. Inside directors are mostly executives. In a common law and one-tier determined system inside directors are employed frequently. Sometimes a lead director is determined to prevent chairman duality in the sense that another director but the CEO is leading the joint board meetings. Outside directors are defined as directors, which are currently not working on the management board but are also not completely independent. So a former executive who retired a few years ago and is now entering a board can be an outside director, whereas an independent director didn't have a relation with the firm before (Oxelheim, 2014)[3]. Directors can be non-independent

[3] Strategic Corporate Finance Lecture by Lars Oxelheim on 18th November 2014.

and have other dependency relations, which can also influence their actions. This might result in activities not in line with the predefined role of the directors (2.2 ROLE OF SUPERVISORY BOARD) and the originally defined responsibilities.

2.1.4 Dependence Relations

Dependence relations can be regarded from an agency theory perspective, where possible conflicts of interest can be detected. One of the main dependence relations is a non-independent director, who can be identified by having business or personal relations, which can create a conflict of interest at the expense of the monitoring function (Regierungskommission, 2014; Hutzenreuter, Metten, & Weigland, 2012; Andreas, 2011). Conflicts of interest can arise due to internal and external issues. They can arise during the work on the board or also exist already at the time of appointment. (Hutzenreuter, Metten, & Weigland, 2012). Employee representatives on boards can usually be regarded as independent (Bartz & von Werder, 2014). This independency is often discussed by pointing out the limited efficiency of control though. Many other interdependencies can be identified. Directors can be interrelated with other boards in the industry or to the financial industry. One of the strongest forms is the 'interlock' situation, where one manager is on the board of another firm and vice versa. These situations can be on the one hand seen as an advantage from the resource dependency theory perspective (2.2.3 INSTITUTIONAL ROLE –RESOURCE DEPENDENCY THEORY), which regards the network as a competitive advantage (Andreas, Rapp, & Wolff, 2010). On the other hand, these interrelations can be seen as a disadvantage from an agency theory perspective because the costs of monitoring of the non-independent manager are higher (2.2.1 CONTROL ROLE – AGENCY THEORY). These interrelations and dependence relations can exist in extreme forms and can also lead to cronyism shaped actions.

2.1.5 Cronyism

One dependency relation could i.e. exist between a former CEO, who is the chairman of the supervisory board nowadays and a former colleague, who is the CEO today. Often, when people work together a long-term friendship and loyalty develops. The two cannot to be assumed as independent anymore. Sometimes even cronyism can be assumed. Cronyism in this thesis is defined by a through close social contact characterized business relation. So benefits are taken and the relation as originally defined by the company's constitution is deviating. Cronyism between CEOs and chairmen can exist and in the past evidence was found that 'mutual back scratching' or 'cronyism' can result in excessive compensation of both parties (Brick, Palmon,

& Wald, 2005). Here the degree of possible cronyism within the relation between the appointer and beneficiary depends on the corporate governance system. The dependencies of the two can influence the role and tasks of the two institutional bodies.

2.2 Role of Supervisory Board

2.2.1 Control Role – Agency Theory

Three major roles and functions of the supervisory board are identified, which are monitoring, advisory and human resource (Stiles & Taylor, 2001).

Generally, the agency theory is determining this research framework and represents the central theory of the role of the supervisory board. It describes a situation where one party, the principal, delegates and pays another party, the agent, to work and take actions on its behalf. The principle in general faces the problem that he cannot observe if the actions of the agent are taken in his interests or if the agent has diverging interests (Jensen & Meckling, 1976). For nowadays-conducted research, agency theory, categorized as a part of New Institutional Economic Theory, builds a major skeleton. The shareholders, principles in this case, appoint the management as agents to pursue firm value maximization (Eisenhardt, 1989). In this structure, with a certain information asymmetry (Akerlof, 1970) and diverging interests existing, the board of directors is a corporate governance mechanism to aid the shareholders, letting the agent pursue actions in their interest. Typical utilization actions by the agent are *'Empire Building'*, *'Shirking'* and '*Consumption on the Job'* (Andreas, 2011:31). This should in consequence be inhibited by a contract to overcome moral hazard. This introduces the control role of the supervisory board (Fama & Jensen, 1983). The board is obliged to do a kind of co-auditing, besides the auditing company, to evaluate financials and figures reported. From the pictured situation a double agency dilemma arises, where the board of directors (agents) is originally appointed to monitor the interests of the shareholders (principles). The supervisory board also acts as a principle to the management board (Clarke, 2007). According to Stiles & Taylor (2001:68) non-executive directors and independent directors are advantageous as controlling bodies due to a higher degree of independence. With regards to agency theory two mechanisms are mentioned to exercise control over the agent: *'Monitoring'* and *'Incentive Contracts'* (Andreas, 2011:33) in form of remuneration. Both agents, the executive board, but also the supervisory board got compensated to incentivize them to pursue the obligations and demanded duties. **Optimal contracting theory** is one element of the agency theory. It solves the information asymmetry issue and puts a contract into the relation thereby preventing

exploitation by the agent (Bebschuk & Fried, 2003). This is done with the goal of minimizing agency costs for the shareholders (Andreas, Rapp, & Wolff, 2010). Contracts can be a possibility to align interests, but when they are negotiated one has to keep in mind that according to the arm's length hypothesis both contracting sides are aiming for the best deal. *'Hence, director compensation is presumed to be the result of a bargaining process between shareholders and directors, (...)'* (Andreas, Rapp, & Wolff, 2010:4). Later it will be discussed how contracts and rewards in form of remuneration are shaped and established in Germany (2.3 SUPERVISORY BOARD REMUNERATION).

2.2.2 Strategic Role – Stewardship theory

The division of labor among the boards implicates that the executive board is dealing with the day-to-day business whereas the supervisory board deals with the monitoring. The strategy and advisory role of the supervisory board is in a greyish area in which both work together. The supervisory board is also the guard to keep the vision and mission determined prior by the management (Stiles & Taylor, 2001). Davis & Donaldson (1991) argue contrary to the agency theory in what they call **stewardship theory**, and the assumption that everyone acts selfish. In their research they propose that managers are stewards, which are likely to have a *'natural motivation'* (Andreas, Rapp, & Wolff, 2010:4) to care for their duties and fulfill their tasks in accordance with their principals. They are not acting in a self-serving nature but have a more holistic approach towards the whole organization. As a main trigger one can determine the strong belief that everything contributed to the organization will be rewarded in the future i.e. in the form of pension payments or career benefits. According to Davis et al. (1997) the power of the manager will not be abused but used to act in favor of the organization. This can also be derived in the direction of supervisory boards, also applicable with chairman duality. The supervisory board is therefore acting in behalf of the firm and is monitoring that the overall strategy is kept and decisions by the management don't depart but are aligned with the original orientation and shareholders' interests.

2.2.3 Institutional Role – Resource Dependency Theory

The board of directors is responsible to provide the organization with critical resources, especially in the sense of a network and external relations. According to Stiles & Taylor (2001) this incorporates relationships with shareholders and also other stakeholder groups and the access to the fundamental and scarce resources. These can be i.e. information, legal know-how and contracting knowledge. As main examples for this so called **resource dependency theory** one can name the network in regards to the influence on banks and ability to improve capital acquirements. Furthermore the network is helpful to recruit and appoint new executive managers. The human resource responsibility including 'Hiring & Firing of the CEO' and setting the CEO salary is regarded as part of the institutional role as well. The board is also representing the company to the external environment and very important for investor relations. Finally one has to admit, although the stewardship explain the role of the supervisory board well, the agency perspective is dominant in accessing the role of the supervisory board and its remuneration.

2.3 Supervisory Board Remuneration

2.3.1 Principles & Elements of Compensation

In line with the **agency theory**, remuneration can be used as an incentive mechanism to let the agent act in the interest of the principal. The payments are part of aligning interests and preventing self- utilization, as described above. Stimuli or variable compensation can build an element to extend motivation and pursuing the goals of the principles. Variable compensation can exist in form of attendance fees, committee work, function related payment for taking on a certain positions i.e. head of a committee. There can even be separate advisory contracts of the directors for advising the company. The remuneration constitutes a cost for the shareholders (Andreas, 2011). Incentives are part of the adverse selection problem, where the agent, the managers, might have hidden knowledge. In this framework the supervisory board is remunerated to avoid actions in their own interest with exclusive knowledge that is not in the best interest of the shareholders. But this argument is not setting the basic remuneration. First of all the payment shall represent compensation for the time spent, which could be spend also on a comparable tasks. This is called expense allowance in form of fixed compensation. Furthermore, it should be an inducement for the demand in scare resource of potential supervisory board candidates. In regards to its peers, every company wants to have the best

board members on its supervisory board. As Andreas (2011) describes, remuneration can either be set according to input, to increase motivation to perform well, or output, which is not valuing the intensity of work but final outcomes. In accordance with the before mentioned optimal contracting theory, one can add here that the incentives to achieve goal alignment should increase until there are diminishing marginal effects (Andreas, 2011). To create an efficient system, fixed and variable remuneration elements are set (Stroh, Brett, Baumann, & Reilly, 1996). Opinions about an optimal remuneration system diverge, where Hahn & Lasfer (2010) and Davis et al. (1997) support agency theory and argue that performance-based elements favor overall shareholder interests.

Whereas **stewardship theory** would predict motivation is also driven with fixed compensation packages (Andreas, Rapp, & Wolff, 2010). Regarding the **resource dependency theory** one would pay a higher remuneration according to the personal network and amount of interrelations and interlocks a directors holds (Andreas, Rapp, & Wolff, 2010).

In contrast to the agency theory, Bebchuk & Fried (2006) support the **managerial power theory** and argue that performance oriented payments do not solve the issue of agency problems; moreover they enhance and create the problems. According to the arms lengths hypothesis, every person has the aim to create contracts in their favor. Research proposes that in a company's setting managers are able to use their power in the pay setting process thereby getting compensation relatively higher to their performance. According to this theory shareholders can get exploited by chairmen receiving 'pay without performance'. In the traditional CEO compensation debates this theory is a major argument and according to Clarkson & Olsson (2010) chairman duality enables 'rent extraction' by both boards. Clarkson & Olsson argue that according to the managerial power theory 'self-dealing' develops where both boards agree upon increasing the compensation levels of each other without additional performance, which can be identified as a mechanism of cronyism.

The **tournament theory** was developed (Lazear & Rosen, 1981) when analyzing incentive schemes and compensation in firms. Its findings propose that managers focus on hierarchy and rankings and are incentivized by next higher levels. The by Gregory-Smith (2009) conducted study in the UK also find evidence for this theory in the context of director compensation and goes even further with identifying that 'losing' managers tend to leave because they were striving for the better. The research conducted concentrated on the directors of a one-tier board though; which leads over to the special setting of a two-tier system.

2.3.2 Two-Tier Agency Theory Model

The traditional agency model sets a framework in which compensation is set according to the task the principle is delegating to the agent. The German agency model differs somewhat from the traditional model. One can identify one principle, the shareholders, and two agents, management board and supervisory board (Seele, 2007; Andreas, 2011). So two agency relationships exist: First the primary principles, the shareholders, delegate the monitoring task to their agent, the supervisory board and set the compensation for it in the annual general meeting. Second, the supervisory board acts as a principle itself, monitors the active management and sets the compensation for the executive board (Koch & Stadtmann, 2013). The main remuneration theories explained above can also be applied to the two-tier agency model. Referring to Andreas et al. (2010) one can apply agency theory and argue that the two-tier structure creates higher information asymmetry between the directors, this makes monitoring tougher and therefore incentive contracts seem to be a reasonable solution. From the stewardship perspective then again the two-tier structure enforces the monitoring role of the supervisory board and facilitates being *'(…) better stewards of the firm's assets than self-serving agents'* (Andreas, Rapp, & Wolff, 2010:1). This strengthens non-incentive based payment structures. So there are various elements of compensation identified according to the different theories and also different processes how the remuneration is set. Differences between countries and more specifics on Germany will be given in the following:

2.4 German Corporate Governance System

2.4.1 Legal Framework

The very complex appearing framework for institutional governance mechanisms in companies in Germany is based on the following laws: 'German Stock Corporation Law' Aktiengesetz (AktG), Gesetz zur Kontrolle und Transparenz im Unternehmensbereich (KonTaG, 1998), Aktien- und Bilanzrechts, zur Transparenz und Publizität (TransPuG, 2002), Bilanzrechtsreformgesetz (BilReG, 2004), Gesetz zur Unternehmensintegrität und Modernisierung des Anfechtungsrechts (UMAG, 2005), Vorstandsvergütungs-Offenlegungsgesetz (VorstOG, 2005), 'German Accounting Law Modernization Act' Gesetz zur Modernisierung des Bilanzrechts (BilMoG, 2009) and finally the Deutscher Corporate Governance Kodex or German Corporate Governance Code (GCGC), which was set into force in 2002 and can be described as a mixture of containing a summary of the legal obligations for companies and soft law with recommendations. The code is checked and revised once a year

by the government commission on corporate governance (Regierungskommission, 2014). In general one can say that the German Corporate Governance System pursues the main guidelines and directions of the OECD principles (OECD, 2011).

2.4.2 Characteristics

Originally corporate governance discussion started off in the US, when shareholder demanded a more efficient monitoring process. Since the 1990's the role and tasks of the supervisory board were also subject to a reformation process (Berrar, 2001). In the past years the abilities of the supervisory board members were questioned in regard to efficiently fulfilling the complex monitoring tasks (Andreas, 2011). These discussions lead to a change of the coherent German Corporate Governance System also. According to the previously described Outsider and Insider System (2.1 CORPORATE GOVERNANCE & SUPERVISORY BOARD STRUCTURE), the German system can be clearly categorized into the latter (Heindrick & Struggles, 2009), where no members of the executive board are allowed to serve on the supervisory board. From a global perspective the German system can be regarded as a prototype of the before explained 'Germanic' Insider System (Andreas, 2011). Through §76 Abs.1 AktG the executive board is responsible for the day-to-day management of the company. And according to §105 Abs.1 AktG chair duality is prohibited (Bundesministerium der Justiz und Verbraucherschutz, 1965). According to Heindrick & Struggles Corporate Governance Report (2009) in 84% of all European countries the function is split. AktG §111 Abs. 1 determines the task of the supervisory board: monitoring of the management in the superordinate interests and direction of business (Bundesministerium der Justiz und Verbraucherschutz, 1965). As Koch and Stadtmann (2013:56) state the supervisory board *'(…) is not in charge of the company's active management, but supervises the company's strategic decisions.'* This clear separation of the executives in regard to their duties makes the German system a perfect example for an Insider System. Further details of the supervisory board structure in Germany, its obligations and duties will be presented in the following parts.

This study focuses on DAX companies that are required to follow the German law, saying that in a stock company of above 2000 employees the shareholders and the employees are appointing half of the supervisory board each. Not only the election process is determined by the number of employees, but also the size of the board, where up to 10.000 employees 12 members are appointed, up till 20.000 employees 16 and above that 20 representatives are appointed. (Bundesministerium für Justiz und Verbraucherschutz, 1976). In a European Large

cap index comparison the average number of board members in Germany is considerably higher (Heindrick & Struggles , 2009). The employee representatives are employees of the company and members of the trade union, whereas the shareholder can be researchers, freelancers, international managers but most often former managers or managers of other large cap corporations. In general the board is representing the shareholders and especially the high number of employee representatives is putting an emphasis on the importance of this stakeholder group in the German system (Stiles & Taylor 2001). The degree of internationalization on German boards was in the European comparison distinctly lower (Heindrick & Struggles , 2009), which could be explained by the findings of Oxelheim et al. (2013) due to language barriers of the employee representatives.

Because of the common tradition to appoint former managers on boards, the average age of German board members is one of the highest in a European comparison (Heindrick & Struggles, 2009). About 50% of the chairmen of DAX Corporations were former CEOs of the company before (Heindrick & Struggles , 2009). Since 2009 financial representatives are often on the boards, which are managers or former managers of banks and insurance companies (Koch & Stadtmann, 2013). Special about the German board is furthermore that the board is regularly elected for five years and then kind of staggered, so relationships between the board members within one board but also to the management board exists over a few years. Less than 15% of all European countries actually have such long tenures, the average is about 3.1 years. The average time on a board of a German board member is about 5.7 years (Heindrick & Struggles, 2009). Furthermore it is possible for the members to serve on various boards and interlock structures exist. Commercial banks have in contrast to the US a certain influencing power on the German Insider Systems. Banks are in contrast even allowed to hold equity in corporations (Elston & Goldberg, 2003). Elston & Goldberg (2003:1397) furthermore state that there is a certain control degree of the banks on the corporate governance systems in Germany, which can be described as *"(...) beyond the traditional boundaries of the creditor-lender relationship (...)"*. In accordance with agency theory a higher degree of monitoring by the creditors is implied in the German system.

The laws and the GCGC furthermore determine that there are three bodies determining decisions: The executive board including CEO, the board of directors and the annual general meeting. A hierarchy of decision power is also set in this chronological order with letting the annual general meeting having the highest power, which can be described as sovereign or

constitutional power and implies certain veto rights. The supervisory board is responsible for the direction of business and the management board for the daily decisions. Furthermore, besides internal monitoring by the revision department and the body of the supervisory board a statutory auditor is appointed, who audits the corporate governance and its bodies (Regierungskommission, 2014).

2.4.3 Supervisory Board

The three roles of the supervisory board as determined previously are also represented in the German Corporate Governance Code and will be discussed in the following: First the supervisory board has the competence to choose the executive board, assess and evaluate the work and set the remuneration. Second the review of the annual report and control of reporting standards such as the appropriation of earnings use belong to the tasks of the supervisory board according to §171 AktG (Andreas, 2011; Bundesministerium der Justiz und Verbraucherschutz, 1965). This part of the tasks incorporates to control that laws and regulations are abided. Thirdly one main obligation of the supervisory board is to supervise the management. This implicates observing that the overall goals are achieved and the intended strategy gets pursued. The board has a veto right for substantial decisions to pursue the before mentioned tasks it the best manner (Andreas, 2011).

2.4.4 Compensation of the Supervisory Board

The pay setting process is typical for a two-tier board structure (OECD, 2011). The supervisory board compensation is set by the shareholders through the annual general meeting, either through a change of constitution or a separate resolution. According to this mechanism, neither the executive board nor the supervisory board ‘shall’ determine the remuneration to prevent self-serving intentions (Deloitte, 2012). This procedure and the double stage principal agent model shall prevent the mutual influence of the supervisory board on executive board remuneration and the other way around (Andreas, 2011). An involvement of the supervisory board on its own remuneration can be seen through proposing a suggesting in the annual general meeting, but this is just of formal nature. (Andreas, 2011). The executive management and supervisory board submit a proposal for the remuneration of the supervisory board. According to Andreas et al. (2010) the supervisory board is just involved due to formal issues. The annual general meeting can vote against the proposal. Often protocols of the shareholder meeting are published and rejected proposals couldn’t be found through thorough Internet research. To summarize, from the policy and constitutional perspective, the transparent two-tier system and

the pay setting process is preventing cronyism actions. Regarding the transparency and decision power of the shareholders on the annual general meeting one can introduce the study of Kronlund & Sandy (2014) here. The 'Say on Pay' principle gives the shareholders of a firm the possibility to vote for on the remuneration of executives and transparency is increased by this (CFA Institute, 2013). A recent study in on US firms showed though that although the aim of 'Say on Pay' was increased transparency and alignment of interests as agency theory predicts, *'(...) the net effect of these changes is higher total pay'* (Kronlund & Sandy, 2014:38). This recognition of not making CEO compensation more efficient shows the scrutiny given to the shareholder committee does not eventually contribute. Adopting this to the German annual general meeting and shareholder decision power, which actually adopted a non-binding say on pay (CFA Institute, 2013) and the supervisory board, one could possibly explain why the shareholders do not make use of their veto rights and vote against lower supervisory board compensation or prevent cronyism measures.

The amount and type of payment to the supervisory board (§113 AktG) (Bundesministerium der Justiz und Verbraucherschutz, 1965) is not determined by law. The GCGC is providing some guidelines, which are as found by Lazar et al. (2013:4) just followed in parts. Furthermore they state that the coherent compensation system and structure is offering only *"(...) limited incentives for "professional" non-executive directors."* Between 2002 and 2012 the compensation recommendation of the GCGC contained a fixed and a variable part. Since then this variable part was removed and the performance – risk relation is therefore broken up. As a PwC Study finds the trend is going in the direction of reducing variable compensation parts (Hösch, 2010). Nowadays the GCGC explicitly states that if variable compensation is a optional component and if included, it should be a long-term-performance incentive (Regierungskommission, 2014). Furthermore no advice is given how the performance related part should be determined and which key indicators should be used for firm performance.

According to the German Corporate Governance Code and Lazar et al. (2013) the compensation of the German supervisory board can be divided into the following elements and characteristics.

Fixed remuneration is paid for being appointed, holding positions and fulfilling the duties (non-performance based). One can state furthermore that the basic remuneration for employees and shareholder representatives is equal. The employee representatives who belong to a trade union are obligated to donate their salaries to Hans-Böckler Stiftung, a foundation of the Confederation of German Trade Unions (Andreas, Rapp, & Wolff, , 2010). In regard to this the

incentive element of the remuneration in accordance with the agency theory can be considered as limited (Andreas, 2011).

Function-related remuneration is paid for being chairman or deputy chairman and effort-related compensation for being involved in committee work and also in the sense of meeting-attendance fees. In all DAX30 companies, the chairman receives a higher compensation; the ratio lies between 1.5 and 2 of ordinary members (Lazar, Metzner, Rapp, & Wolff, 2013). The use of attendance fees as part of the function related compensation increased over the past years and as Lazar et al. (2013) found out in their research on listed German Corporations they ranged from EUR 200 till EUR 5.000. In general they make up a relatively small part of the remuneration.

Variable remuneration is paid in relation to firm-performance, either within the fiscal year (short-term) or long-time elements accounting for a longer period than the fiscal year are used. Previous research shows that in 2012 although recommended, just a small percentage of the firms used the elements of long-term performance compensation (Metzner, Rapp, & Wolff, 2012). In general one can furthermore state that supervisory board compensation is, other than in the US (Oxelheim & Clarkson, 2014), cash based and not linked to options or other stock compensation (Lazar, Metzner, Rapp, & Wolff, 2013). In Germany it is furthermore possible, even though done rarely, to negotiate a **consultancy contract** between a supervisory board member and the company with additional compensation for complementary advisory services. The validity of the contract needs to be approved by the whole supervisory board (Hutzenreuter, Metten, & Weigland, 2012) and the remuneration has to be disclosed.

Regarding the compensation it has to be added that the supervisory board compensation should underlie a non-discrimination percept, which means that members should be remunerated according to their tasks and functions but not due to individualities (Koch & Stadtmann, 2013; Andreas, 2011)

2.4.5 Recent Developments

Koch & Stadtmann (2013:56) state: '*The topic of supervisory board compensation in Germany is currently of high interest, and it can be said that the supervisory boards are moving more and more into the public eye.'* This is not only due to **compensation** topic reasons, but also issues like **composition** of the board, **tasks** of the board and **efficiency** of work.

To start with the **composition**, one can state that the diversity of supervisory boards was discussed and political movements in Germany, which demanded 30% women on supervisory boards (Tower Watson, 2014) and binding quotas were introduced (Nienaber, 2014). Furthermore former CEO members have to make a two years break before they can be appointed to the supervisory board (Andreas, 2011). Furthermore the GCGC was changed and employing a financial expert on the board with special accounting knowledge is now demanded (Regierungskommission, 2014). Furthermore the number of employee representatives is very high in the international comparison and this issue is discussed in regards of the efficiency of monitoring (Andreas, Rapp, & Wolff, 2010). This leads us from the topic of composition towards the **efficiency** of the board discussion. Besides the monitoring competencies of the employees the working methods and processes of supervisory boards of criticized in general (Pacher & von Preen, 2014).

The GCGC is providing a certain definition of an independent member and a study did show that on average the criteria of independence was not fulfilled adequately (Hutzenreuter, Metten, & Weigland, 2012). But it was detected that the frequency of having multiple seats decreased and therefore the busyness of individuals and the dependence relations (Andreas, 2011). Departing from interdependences one can also observe changes in the responsibilities of the supervisory board members. The members can be made individually liable for decisions, i.e. the decision on adequate CEO compensation (Koch & Stadtmann, 2013). Also because of this a trend of Directors & Officers Liability Insurance to prevent being sued individually can be detected (Andreas, 2011). This demands that the responsibilities and tasks are fulfilled in the right manner. Nowadays a higher degree of advisory activities is demanded (Andreas, 2011:17) and therefore the demanded monitoring skills and abilities also increased.

One example for the changed role and **task** is that the control function has developed in the past years. Previously annual reports were checked backward looking. Nowadays the possibilities of active involvement and contribution increased. As example Andreas et al. (2010:26) names a *'Follow-up'* reporting obligation of the executive board towards the supervisory board to

present revised results. Furthermore the strategic advisory component requires a permanent consulting (Andreas, 2011). Additionally the advisory function of the supervisory board and conflict of interests are a topic of recent discussions. Supervisors want to work as advisors of the management on the one hand and on the other hand have the obligation being an independent control body (Andreas, 2011). In the 2006th Annual Meeting on the GCGC Clemens Börsig, a former executive board member and later chairman of the board of Deutsche Bank, also presented his position papers on the changing role of the chairman. He states that responsibilities and tasks became more intensive over the years. The original task as a "honorable task" changed to a more demanding task and the tasks of the executive board and supervisory board converged (Börsig, 2006). Lazar et al. (2013) describe this change as *"(...) these regulatory changes turned the formerly "honorary post" of a supervisory board member (non-executive director) into a time consuming position with substantial responsibilities (and also liabilities)".* Due to this a higher **compensation** is demanded in general. Furthermore changes in variable compensation can be observed. In Germany, equally like in Sweden, it is not possible (since 2005), other than in the US, to compensate with options or warrants as performance related elements (Andreas, 2011). Most research showed that in accordance with the agency theory, directors are compensated for their monitoring function and control role (Oxelheim & Clarkson, 2014). Especially since the financial crisis, the variable remuneration, which was relatively high in the past, is decreasing and fixed elements occur more frequent again (Pacher & von Preen, 2014). Also since the crisis the interest in corporate governance and the interest in the relationship between pay and performance increased tremendously as detected by Clement (2009). These observations were confirmed by the recent Tower Watson Study (2014) on DAX30 companies. With the 2012 changes of the GCGC the trend back towards a fixed remuneration and less variable compensation was furthermore found (Tower Watson, 2014; Deutsche Schutzvereinigung für Wertpapierbesitz, 2014). It was also observed that the remuneration of the non-executive directors is relatively low in the international comparison (Tower Watson, 2014). It was also found that diversity increased in two ways, internationality on boards increased up to 29% and women made up 24% of supervisory board members in 2014 (Tower Watson, 2014).

2.5 Empirical Determinants of Supervisory Board Remuneration

2.5.1 Previous Findings

More often than supervisory board compensation, executive compensation was object to previous empirical studies. As a point of departure, besides the above stated scientifically accepted theories (2.2 ROLE OF SUPERVISORY BOARD) we used studies on the determinants of board of directors and executives compensation. According to Oxelheim & Clarkson (2014:6) research on chairman compensation and *'(...) determinants of board compensation is heavily influenced by research on executive compensation.'* In the past the three categories of CEO and chairman compensation determinants *'criteria', 'governance'* and *'contingenices'* (Barkema & Gomez-Mejia, 1998: 136) were identified and followed up in further research. Not only the same categories bring the two research topics close but also the as previously researched singular relationship between the two, which makes it an interesting topic for further investigations (Roberts & Stiles, 1999). Furthermore there are , '*(...) firm specific and economic factors that have an effect on both positions (...)'* (Oxelheim & Clarkson, 2014: 6) and the hereafter named criteria will be incorporated in the study. The previous section will be structured into Chairman Characteristics, Corporate Governance Characteristics including CEO specifics and Firm Characteristics containing economic determinants. These criteria classification will guide the reader trough the conducted thesis (3.3 VARIABLES).

In the historical context one can state that most of the studies conducted were based on US and UK data and therefore also Anglo-American structured one-tier boards and outsider system shaped environments had priority. More recently research has also extended to non-executive directors, compensation elements in regards to the increasing complexity of the tasks and women on boards. Research on CEO compensation builds a basis for derivations and interferences of chairmen payment determinants. In this study CEO compensation is also an element of interest and used as explanatory variable.

Researchers determined firm size and complexity as compensation determinants, among other Firm Characteristics and economic determinants. Both can be used to proxy the complexity of the monitoring task of the board. As approximation one can name sales (Chen, 2014) and total assets (Brick, Palmon, & Wald, 2005). Furthermore the complexity dimension was further researched and identified as significant with the following approximations: company growth (Yermack , 2005) price to book ratio (Linn & Park, 2005) and stock price volatility (Brick,

Palmon, & Wald, 2005). Regarding the Firm Characteristics, previous findings indicate mixed findings about the influence of firm performance on board compensation. One the one hand studies argue that a positive relation is indicated (Brick, Palmon, & Wald, 2005) and on the other hand findings provide information about a lower compensation with increasing performance (Ryan & Wiggins, 2004). This topic will also be observed in the conducted study, especially because the DAX30 companies were influenced by the financial crisis and its aftermath. Furthermore ownership and block holders, in regards to the agency theory (2.1 CORPORATE GOVERNANCE & SUPERVISORY BOARD STRUCTURES and 2.2 ROLE OF SUPERVISORY BOARD) have been identified as crucial and determining in previous research.

The intensity and power of corporate governance mechanisms, categorized into Corporate Governance characteristics, make up another field of determinants of compensation. Previous researchers i.e. found that the size of the board could possibly effect the performance of the board negatively and therefore the compensation (Ryan & Wiggins, 2004). Furthermore it was indicated that the board's effort and attempt, which can be measured with a proxy of meetings attended (Brick, Palmon, & Wald, 2005) has an increasing influence on chairman compensation. This study also investigates upon if this measure influences chairman compensation.

When ownership is dispersed, boards can obtain greater monetary compensation, because the lack of ownership control is allowing for bigger rewards for the agents (Elston & Goldberg, 2003). Elston & Goldberg (2003) find furthermore that the influence of German banks as block holders reduce compensation like the ownership dispersion argument. Andreas et al. (2010) can confirm that ownership concentration, management ownership and external block holders have a negative correlation with supervisory board compensation. Sticking to the CEO specifics and its compensation in a one-tier framework, divided evidence on the influence of CEO payments on non-executive director pay levels is coherent. Boyd (1994) conducted research on the reverse relation and could find a positive relation of non-director compensation on CEO compensation, whereas the American compensation expert Graef S. Crystal states (1991) that the increased pay to non-executive board members is a payback for increased CEO compensation. Results of Clarkson & Olsson (2010:40) show that the Mixed Swedish system, which is a stakeholder oriented system and shaped by civil law, is in line with agency theory, which states that directors are compensated in line with interests of the shareholders. Furthermore they can find, as Oxelheim & Randøy (2003) already proposed, the salary increased with Anglo-American

directors on board and that 'performance pay' is more common in Anglo-Saxon boards. They furthermore found that the busyness of directors is positively correlated with compensation. This is not in line with previous studies were researches determine that *'(…) busy boards can suffer from coordination problems.'* (Clarkson & Olsson, 2010:41).

Koch & Stadtmann (2013) found that the compensation of the supervisory board individuals is mainly driven by the roles and functions (Chairman Compensation characteristics) of the board members, as the GCGC recommends. They furthermore found that as recommended with the non-discrimination precept gender, PHD title, the member's background and being employee and non-employee have no statistically significant influence on compensation. Furthe they detected that average individual board compensation was lower the more females were appointed to the boards.

Besides the three main categories of determinants and going into German research, one can identify the hereafter-named proxies as determining chairman compensation. Andreas et al. (2010) analyzed the link between firm success and compensation levels in Germany and used shareholder return, divided yield and return on assets and return on capital and did find a statistically positive relation. Furthermore it can be expected that stewardship theory, in the Anglo-American of Swedish comparison is building an anchor. This leads over to the reference point, where the aimed new contribution of our research is stated.

2.5.2 Reference Point

Departing from the Insider- and Outsider Corporate Governance Systems and the traditional underlying theories one can argue like Hahn & Lasfer (2010:10) that the lack of research in non-executive director remuneration exists due to a *'(…) lack of consensus on the non-executive director role.'* This argument leads us into specialty of the country chosen. As stated above (2.5.1 PREVIOUS FINDINGS) in the past primarily CEO compensation in the common law shaped one-tier US system built the basis for empirical studies in corporate governance research. In the Anglo-American research framework one-tier boards and the Outsider Corporate Governance Systems are empirically analyzed and data were gathered. As already defined by Elston & Goldberg (2003:1392) *'Germany is a country of particular interest not only because it has considerably lower levels of compensation than the US, but also because it has a very different corporate governance structure, (…)'*. This is commonly mentioned, when defining research gaps in corporate governance in Europe. Only a few empirical analyses on Mixed systems and two-tier systems have been conducted. The country specifics was detected by Oxelheim &

Clarkson (2014) before and, when dipping into the current German research on supervisory board compensation, verified. Koch & Stadtmann (2013:57) recognize, that *'(…) most previous research is concerned with analyzing executive directors'* compensation rather than with that of supervisory board member's compensation. It is furthermore interesting to focus on the German two-tier board system because it is a prototype model and other countries' systems like Austria and Poland (Heindrick & Struggles , 2009) can also derive conclusions. So we will add to the previously conducted research by conducting a detailed analysis on the level of chairman compensation of German DAX30 companies. Furthermore the relation between the CEOs and Chairmen is of special interest and will be examined. Generally in past research, CEO compensation and the dependency of this on director compensation was focused, as the study of Brick et al. (2005) shows. In the same approach as Oxelheim and Clarkson (2014) we analyze the reverse relation between the two and research on cronyism. They analyzed the reverse relation (choice of dependent variable and explanatory variable) for the first time and this will also be the point of departure for this study. Equally like Oxelheim & Clarkson (2014) only the chairman is the central element of interest in this study. One can take upon their argumentation, because a chairman and his compensation is incorporating all the characteristics of the remuneration system (Oxelheim & Clarkson, 2014). Also as a former CEO, has the greatest power in the board and a high probability of having strong social contacts to the management. Analyzing the same relation makes a comparison between the Swedish Mixed System and the German two-tier board system possible. Starting off with their cronyism definition and findings on mutual back scratching, the specialties of the German board and the increased focus on supervisory board compensation in the public media make this field an attractive research topic. The starting point was set here and the decision made to also edit the time horizon and include turbulent times of the crisis. The changes in disclosure obligation make it possible to analyze the scope or remuneration of nearly 10 years. According to Lazar et al. (2013) *"The demand for effective supervision is also reflected in the latest regulatory initiatives throughout the world in the aftermath of the recent financial crises."* Their research is also building a very good status quo presentation of the situation of supervisory board compensation in Germany. What the most recent studies in Germany miss is the cronyism discussion and the CEO compensation as the main explanatory variable.

So the conducted study can go further in the time dimension and contribute also from the point of recent discussion topics in the public media on performance based compensation of chairmen. It is very interesting to see if differences exist between compensation systems, since

German companies have the possibility to proactively decide if fixed or variable compensation is used (Block, von Preen, & Bursee, 2012; Bartz & von Werder, 2014). Especially connecting to the findings of Hölz (2013), who argues that variable compensation is sending misleading incentives in the two-tier board setting, an investigation on the CEO-chairman relation seems appealing. It is argued that if both boards are compensated this way the motivations diverge and can influence arising conflicts, especially for the supervisory board, which should concentrate on monitoring. The fixed and variable compensation argument also fits to the new contribution of this study, because not only the total outcome of the compensation system in form of a total chairman salary is used but also both elements of compensation are analyzed. Latest research and determinants of supervisory board compensation on two-tier boards by Andreas et al. (2010) and Koch & Stadtmann (2013) build the point of departure for research in the German settings. Based on these theoretical backgrounds we identified three hypotheses that we test in this study. They will be introduced in the next section, followed by a description of our data collection and an explanation of each variable used. In the last step we explain the methodology of our econometric model.

3 Methodology

3.1 Hypotheses

To start of our research we formulate research questions in constructing three different hypotheses. Our hypotheses are set according to the governance environment of German listed firms and in light with previous research introduced before (2.5 EMPIRICAL DETERMINANTS OF SUPERVISORY BOARD REMUNERATION). The supervisory board's task is to monitor the management board but not to interfere in daily decisions of the management board. A chairman, who is not an employee representative rules the supervisory board. While the management board's remuneration consists to a large part of a variable portion, as our research shows, the chairman's compensation is not depending on the firm's performance to the same extent. This is due to the fact that the chairman's main task is to monitor the management mainly, no matter how the firm is performing. There is also a large difference in remuneration levels. The CEO usually earns a multiple of the chairman's compensation. The supervisory board has the decision-making authority on CEO compensation while the management board together with the supervisory board, proposes the chairman and supervisory board compensation to the annual general meeting. Departing from these points, our variables of interest representing the possible cronyism relation are CEO and chairmen compensation. Since our sample also covers the time frame of the financial crisis (3.2 RESEARCH APPROACH & DATA COLLECTION), we need to test if that has an impact on CEO compensation.

Regarding these given facts we formulate hypotheses to test the influences on chairman remuneration in light of suspected cronyism by controlling for Chairman Characteristics, Corporate Governance Characteristics, Firm Characteristics and Remuneration in Crisis. The first hypothesis covers the relationship between total CEO compensation and chairman compensation. It is build based on the theories mentioned above, mainly the principal agent and in light of theories regarding dependence relations. The hypothesis is also tested as it was included in the previous research of Oxelheim.

Hypothesis 1: There is a positive relationship between CEO compensation and chairman compensation[4]

[4] Following a stricter statistical formulation, we are testing the null hypothesis of no relationship.

The second hypothesis controls for the fixed and variable parts of CEO and chairman compensation. A separate regression test for the fixed part and also the variable part is done. The rationales behind this hypothesis are theories presented in section 2.3 SUPERVISORY BOARD REMUNUERATION. We want to test if a positive relationship between the fixed CEO and the fixed chairman compensation exists.

> **Hypothesis 2:** There is a positive relationship between fixed CEO compensation and fixed chairman compensation

The global economic and financial crises starting in 2007 hit western economies hard. Germany was also affected, although not to the same extent as other countries. We still want to control for this and investigate if the crisis did affect chairman compensation. The third hypothesis incorporates this.

> **Hypothesis 3:** There is a significant impact of the financial crisis on chairman compensation

To test our hypotheses we identified various variables to use in an ordinary least-square (OLS) regression. In the next section it is explained how the data was retrieved, followed by a detailed description of the variables used.

3.2 Research Approach & Data collection

According to Gary Henry's (1990) argument *'when dealing with small populations (less than 50 members), collecting data on the entire population often improves the reliability and credibility of the data.'* the performed study on the DAX30 companies (Table A 8: DAX30 Companies) was conducted on the whole population. Thornhill et al. (2009) recommends collecting data from a total population if the data collection is feasible. According to Oxelheim & Wihlborg (2008:217) the research method of conducting a study on a whole population can also be described as analyzing a *'super population'*. The study does not have to cope with problems according to sampling techniques and the reliability of sampling. It has the benefit of an easy and true hypothesis testing (Henry, 1990). Since there are plenty more stock corporations listed in Germany, the analyzed companies are only a part of a larger pool of listed companies. The research was conducted with secondary data retrieved from Thomson Reuters Datastream, Thomson Reuters Eikon and manually collected data of annual reports of the population. The benefit is that a 100% response rate is obtained (Thornhill, Saunders, & Adrian,

2009) The quality is high in comparison to manual data collection (Steward & Kamins, 1993). Furthermore the secondary sources, especially Datastream but also the annual reports are assembled by the same originators and therefore stable and repeated over long periods (Thornhill, Saunders, & Adrian, 2009). One pitfall can be a certain aggregation of data (Thornhill, Saunders, & Adrian, 2009), which is detected in annual reports to some extend and can be described as biasing and unsuitable to detect true values. For example pensions paid to CEOs are often not included in the annual remuneration of CEOs and disclosed in different formats. Sometimes pensions are not disclosed at all. Wherever they are disclosed we add them to fixed compensation. This argument represents the contra argument of having restricted control on the data (Thornhill, Saunders, & Adrian, 2009). Nevertheless collecting secondary data was more applicable in a cost-benefit-relation for this study and the authors are convinced that a critical evaluation is sufficient to draw conclusions on the research question. A quantitative analysis with the help of EViews is conducted with these secondary data. The retrieved dataset consists mainly of two forms of data: numerical continuous data and categorical data. Compensation in EUR values or chairman age are data which can take on any value within a certain interval. Categorical data and especially dichotomous data take on a number but just between two categories (Thornhill, Saunders, & Adrian, 2009). In the conducted study various dummy variables are used, where a categorization between two groups i.e. "former CEO or non-former CEO" is made. Since a time dimension and a CSU dimension is analyzed, the data set is a panel data set. The data consists of chairman compensation of German DAX30 companies over the time period from 2006-2014. We are investigating on the 30 companies that are listed in the DAX at the publication date of this research, no matter if they were not in the index for the complete observation period to stay consistent. We use 2006 as the starting point as in most cases before 2006 no data on the independent variable *CEO Compensation* was disclosed. Since our sample stretches through the periods of the financial crisis we have to incorporate possible implications into our analysis.

3.3 Variables

3.3.1 Dependent Variable

In the following, an explanation on the variables used in the study is given. Table 1: Variable Definition and Description, presents a condensed overview and description of each variable. Furthermore our hypothesized effect on the dependent variable and the supporting theory behind this hypothesis data source of the variable is shown. To start with the dependent variable

in our study is *Chairman Compensation*. It was chosen in accordance with previous research by Oxelheim & Clarkson (2014). The variable is calculated as the total sum of all payments to the chairman, including fixed and variable components and payments for additional committee roles. The proportion of variable to total compensation varies a lot in our sample. To account for that and investigate on these effects, a second scenario is constructed with the dependent variable being fixed compensation (4.2.1. FIXED COMPENSATION). Chairman compensation increased on average by 6.5% annually between 2006 and 2014. On average a chairman of a DAX30 company earned EUR 228,127 in 2006 to EUR 364,373 in 2014. Compensation increased the most from 2009 to 2010 by 26%, just to go through the highest drop by 9% till 2011. In total, compensation rose by 60% from 2006 levels to 2014.

3.3.2 Explanatory Variable

We include one explanatory variable into our original regression to test if our cronyism suspicion is supported. *CEO compensation* includes the fixed and the variable part of the CEO remuneration. We also include pensions as far as they are declared in the companies' annual reports. Also stock options are included as declared in the annual reports. In observations where more than one CEO is compensated over the year, the sum is calculated. Since CEO wages are set by a supervisory board committee before the annual general meeting (Regierungskommission, 2014) we lag *CEO compensation* by one year. This is in line with the approach by Oxelheim & Clarkson (2014).

For our second scenario the explanatory variable that is used is *Fixed chairman compensation*. It concludes just the fixed part of the CEOs compensation and is retrieved as explained above. In the third scenario the explanatory variable is variable chairman compensation. It consists out of the variable part of the compensation and is retrieved like the other variables. In order to test if a link exists between chairman and CEO remuneration we include three types of control variables: Chairman Characteristics, Corporate Governance and Firm Characteristics.

3.3.3 Control Variables

Chairman Characteristics

Our approach regarding control variables is in line with previous studies, to name the ones by Andreas et al. al (2010), Andreas (2011), Brick et al. (2002, 2005), Bremert & Schulten (2009), Chen (2014), Clarkson & Olsson (2010), Koch & Stadtmann (2013) and finally and most inspiring Oxelheim & Clarkson (2014). Based on these previous studies we identified variables that are applicable to our research and also introduced variables that are especially important

for the German case. The first cluster of controls regards the personality of the chairman. The rationale behind this is to test if the distinct characteristics of a chairman have an influence on its compensation. For a better understanding this cluster is divided into four subgroups.

The first one covers the basic characteristics of the chairman. We include three dummies, regarding the chairman age, its academic background and its gender. The *Age* dummy equals one if the chairman is over 65 years old. It is calculated as the firm sample year less the chairman's birth year. The variable is included to account for the labor economics theory (Brick, Palmon, & Wald, 2002) saying that knowledge and experience increases with age and education. Compensation should account for that, therefore and we expect a positive influence on compensation (Lazear, 1981; McKnight et al. 2000; Oxelheim & Clarkson, 2014). The *Academic* dummy equals one if the chairman holds a PhD or a higher academic title and is used as a proxy for a higher education level. Due to the higher education, a positive relationship towards the independent variable is expected (Koch & Stadtmann, 2013). The third characteristics dummy is *Gender*, which is equal one if the chairman is female. According to recent research there is still a remuneration gap between men and women (Koch & Stadtmann, 2013) and females are underrepresented on boards. This is evident in our sample. Out of the 270 observations in only six cases the chairman is female. German policymakers reacted on that and introduced a quota demanding at least 30% of board members of listed companies to be female from 2016 onward (Nienaber, 2014). The expected effect on compensation is twofold, as indicated above females earn less on average than their male colleagues. Still it could also be argued that due to the distinct position of a chairman the remuneration is fixed no matter what the gender is. As our sample shows, regular female supervisory board members receive the same remuneration as their male colleagues. Remuneration is usually set equally for every board member. We still expect the effect to be negative though; since the dummy is one in only six cases we doubt the significance of the variable.

The second subgroup covers the chairman's background with its employer. The first variable to control for is *Tenure*, which we include in line with Oxelheim's approach. It is measured as the number of years that the chairman has held the position. We expect a positive influence on the dependent variable based on the experience argument stated above. Three other dummy variables account for the past positions that the chairman did hold. They are used as proxies to indicate the commitment to the firm. The dummies are *Founder*, *Previous executive* and *External director with industry experience*. A fourth dummy stating that the chairman is without industry experience was dropped to avoid multicollinearity issues. *Founder* takes on the value of one if the chairman or his ancestors founded the firm. *Previous executive* equals one if the

chairman used to hold an executive position in the company previously. *External director with industry experience* equals one if the chairman was not working for the company previously but used to work in the industry. The theoretical rationale to include these variables grounds on the idea, that the deeper the relationship and entrenchment between the chairman and the firm is, the higher the remuneration. It is expected that due to rising experience, commitment and therefore stronger ties to the management board (possible cronyism), a higher remuneration is paid (2.1.5 CRONYISM).

The third subgroup covers the chairman's internationality. According to Greve & Ruigrok (2008) a growing number of foreigners on the top executive management can be observed lately. The variables *International experience* and *International education* are used as proxies to show if an international background has a significant influence on chairman remuneration. They take on the value of one if the chairman has been studying at a university outside of Germany and of one if he has been working in a company domiciled outside of Germany respectively. We expect a positive influence on compensation, as the firm will benefit from the internationality. The fourth subgroup of Chairman Characteristics accounts for the involvement of the chairman.

The dummy *Additional directorship* is equal one if the chairman is on the supervisory board of at least one other firm. It is used as a proxy to measure the busyness of the chairman. A busy chairman is supposedly not able to effectively monitor a firm's management (Oxelheim & Clarkson, 2014). Therefore a lower remuneration is expected. To proxy the chairman's personal commitment to the firm the dummy *Substantial equity ownership* is constructed. It takes on a value of one if the chairman possesses one per cent or more of outstanding shares. We expect a positive influence on remuneration as the chairman has more influence on firm's decisions.

Corporate Governance Characteristics

The second cluster of control variables consists of variables concerning corporate governance features. As mentioned above, our sample of variables used is in line with previous research. While in other studies an emphasis was put on employee representation on the board, we decided to disregard that issue as the German Corporate Governance Codex states that 50% of board members have to be employee representatives (Regierungskommission, 2014). The governance cluster is also divided into four subgroups.

The first one summarizes variables regarding board characteristics. The *Anglo American* dummy equals one if at least one board member has an US-American, British or Canadian citizenship. In line with Oxelheim and Randøy's findings (2003) we expect a higher

remuneration in cases with Anglo-American board members due to the fact that this will lead to a tolerance for higher compensation such as in American markets. *Internationals* controls for the percentage of non-Germans on the board and is calculated by dividing the number of non-German board members by total board members. Including this variable we control for the signaling effect that a board with international experience has on investors. The third variable controls for the *Board size*, which is measured as the number of board members. We include this variable to account for Fama and Jensen's (1983) findings that the coordination effort increases and effectiveness of the board decreases with rising board sizes. Therefore one can assume that the chairman should earn more because of higher demands regarding board coordination. Coordination efforts of the chairman will also increase with a busy board as board members have other responsibilities outside of the firm (Oxelheim & Clarkson, 2014). To control for this, the dummy *Busy* is used. It takes on the value of one if 50% or more of the shareholder representatives hold at least three other directorships at the same time. The dummy *Financial industry knowledge* equals one if at least one board member is working for a company in the financial industry like a bank or an insurance firm. These board members are expected to possess financial expertise and contribute to the success of the firm (Bremert & Schulten, 2009).
The second subgroup controls for the ownership structure of the company. The approach is in line with Oxelheim & Clarkson (2014) and adapted for the German case. Three dummies are used. *No major shareholder* equals one if the company has no single shareholder owning at least 5% of the stocks outstanding. *Major shareholder 5-25%* equals one if one shareholder owns between 5-25% and *Major shareholder 25-50%* equals one if one shareholder owns between 25-50% of stocks outstanding. The case of all dummies turning zero displays a single shareholder owning more than 50%. The boundary of 25% was chosen to account for the German Stock Corporation Act (Bundesministerium der Justiz und Verbraucherschutz, 1965) which enables a block holder of more than 25% to use its blocking minority to block fundamental decisions like changes in the company's constitution for example. The boundary of 50% was chosen as this indicates the threshold to complete decisive power. We expect declining chairman compensation in a growing block holder stock ownership as monitoring will be done to a greater extend by the major block holder (Elston & Goldberg, 2003). With this approach the need for high chairman remuneration is not given therefore.
The third subgroup covers the supervisory board compensation. *Variable compensation ratio* shows the proportion of variable to total board compensation (Bremert & Schulten, 2009). Since the variable part will rise in times of good performance, a positive relationship between the compensation ratio and chairman remuneration is anticipated. The variable *Board*

compensation is measured as the total board remuneration divided by the total amount of board members multiplied by the natural logarithm. We expect a strong positive correlation between the single director compensation and the chairman compensation; a high multicollinearity could be an issue since the chairman remuneration is a part of the total board compensation.

The fourth subgroup covers CEO specification and incorporates *CEO tenure* into the regression (Bremert & Schulten, 2009). It is measured as the number of years that the CEO has been in his position. We expect a positive relationship towards the independent variable. In 4.4. ROBUSTNESS, VALIDITY & RELIABILITY we account for possible cronyism resulting from the CEO and the chairman working together since a longer time.

Firm Characteristics

The third cluster of control variables consists of variables concerning firm individualities. By controlling for Firm Characteristics we are in line with previous research that states an effect on executive and non-executive compensation levels (Oxelheim & Clarkson, 2014). The variables are put into the two subgroups Firm Size and Asset Ratios. We incorporate variables concerning firm size to test if the size of the firm has an influence on the chairman remuneration. All data concerning firm characteristics was retrieved via Thomson Reuters Datastream.

The first variable *Size* is the logged asset value of the firm (Oxelheim & Clarkson, 2014). We anticipate a positive correlation towards the dependent variable as the chairman's responsibility and complexity rises with rising asset value, managers on the board etc. that he has to monitor. A higher compensation should account for that. The second variable, *Tobin's q* is calculated as the sum of the market value of common stock plus the book value of total debt divided by the book value of total assets. Tobin's q is used as a proxy for the firm's performance and market expectations (Oxelheim & Clarkson, 2014). Another proxy for the firm size is the number of *Employees* (Andreas, Rapp, & Wolff, 2010), which is included in the regression by its logged value. We anticipate a positive influence on the dependent variable for the same reasons as for *Size*. Another firm size proxy is *Sales*, which is the logged value of sales of the firm's business year (Chen, 2014). We also expect a positive relation towards compensation as performance is often measured in sales figures. The variable part of the chairman compensation should rise therefore in growing sales.

The second subgroup Asset Ratios consists of four variables. *Risk* is measured as the cash flow risk of the firm, which is proxied through the standard deviation of the last five years on the firms return on assets (Brick, Palmon, & Wald, 2005). Since a higher risk indicates a higher monitoring effort we expect a positive relationship towards the dependent variable. To proxy

for the asset intensity of the firm we use the variable *Tangible Assets*, which is the ratio of property, plant and equipment over the total asset value. Following the research of Brick (2002) we anticipate a negative correlation towards the dependent variable. To control for the firm's *Leverage* we use the ratio of total debt to total assets (Brick 2002). The theoretical implications on *Chairman Compensation* are twofold. On the one hand debt is seen as a monitoring device, rising debt levels might therefore offset the chairman's necessity to monitor, resulting in a lower compensation. On the other hand, increased debt might enhance the agency problem between stockholders and debtholders and therefore a higher monitoring is needed (Jensen, 1986, Williamson, 1988). Following the research by Brick (2002) again, we anticipate declining *Chairman Compensation* as *Leverage* increases. To proxy for the firm's *Investment activities* the ratio of capital expenditures over total assets is used (Brick 2002). We expect firms with higher investment activities to pay their chairman a higher remuneration, as high investments require a higher monitoring effort. Since some of the variables used cover similar aspects, mutlicollinearity can be an issue.

Remuneration in Crisis

Since our sample includes all years of the financial crisis we included the dummy *Crisis* to control for the effects of the crisis and to research upon the effects of the crisis on chairman compensation. The dummy takes on the value of one for the years from 2008-2011. As indicated above, many DAX30 companies changed their chairman compensation scheme from one that consists of a big flexible portion to one that is mainly fixed in these times. The overall chairman compensation did not change tremendously. We expect a negative impact of the crisis on total remuneration and also on the success related remuneration

Table 1: Variable Definition and Description

Variable Name	Variable Description	Hypothesized Effect	Supporting Theory	Source
Dependent Variable				
(1) Chairman Compensation	The logged sum of fixed and variable salary to the chairman			Annual Report
(2) Fixed chairman Compensation	The logged sum of fixed salary to the chairman			Annual Report
(3) Variable chairman Compensation	The logged sum of variable salary to the chairman			Annual Report
Independent Variable				
(1) CEO compensation	The logged sum of fixed and variable salary to the CEO, including the value of stock grants, stock options and pensions as reported in the firm's annual reports, lagged by one year	Positive	Managerial Power Agency Theory	Annual Report
(2) Fixed CEO compensation	The logged sum of fixed salary to the CEO, including pensions as reported in the firm's annual reports, lagged by one year	Positive	Managerial Power Agency Theory	Annual Report
(3) Variable CEO compensation	The logged sum of variable salary to the CEO, including the value of stock grants, and stock options as reported in the firm's annual reports, lagged by one year	Positive	Managerial Power Agency Theory	Annual Report
Chairman Characteristics Control Variables				
Basic Characteristics				
Age (0,1)	Dummy equals one if chairman is over 65 years old	Positive	Labor Economics Theory	Internet Research
Academic (0,1)	Dummy equals one if chairman has a PHD or higher academic title	Positive	Labor Economics Theory	Internet Research
Gender (0,1)	Dummy equals one if chairman is female	Negative	Labor Economics Theory	Internet Research
Background with Company				
Chairman Tenure	The number of years that the chairman has held its position, including the year of appointment	Positive	Agency Theory	Eikon Internet Research
Founder (0,1)	Dummy equals one if chairman is founder of the firm or his ancestors were	Positive	Agency Theory	Eikon Internet Research
Previous executive (0,1)	Dummy equals one if chairman was executive manager before becoming chairman	Positive	Agency Theory	Eikon Internet Research
External director with industry experience (0,1)	Dummy equals one if chairman was director at another firm in the same industry before his appointment	Slightly Negative	Agency Theory	Eikon Internet Research
Internationality				
International experience (0,1)	Dummy equals one if chairman has worked outside of Germany before	Positive	Labor Economics Theory	Internet Research
International education (0,1)	Dummy equals one if chairman has received higher education outside of Germany before	Positive	Labor Economics Theory	Internet Research
Involvement				
Additional directorships (0,1)	Dummy equals one if chairman is on the supervisory board of at least another firm	Negative	Agency Theory	Annual Report
Substantial equity ownership (0,1)	Dummy equals one if chairman owns at least 1% of shares	Positive	Agency Theory	Annual Report

Variable name	Variable Description	Hypothesized Effect	Supporting Theory	Source
Corporate Governance Characteristics Control Variables				
Board Characteristics				
Anglo American (0,1)	Dummy equals one if at least one director is Anglo-American	Positive	Signaling Effect Internationalization	Internet Research
Board size	Total number of directors on the supervisory board	Positive	Agency Theory	Annual Report
Busy (0,1)	Dummy equals one if 50% or more of non-employee directors hold at least 3 other directorships	Negative	Agency Theory	Annual Report
Internationals	Percentage of non-Germans on the board	Positive	Signaling Effect Internationalization	Annual Report
Financial industry knowledge (0,1)	Dummy equals one if at least one chairman has a financial industry background	Positive	Signaling Effect	Annual Report Internet Research
Ownership				
No major Shareholder (0,1)	Dummy equals one if no shareholder holds 5% or more company shares	Positive	Agency Theory	Datastream
Major Shareholder 5-25% (0,1)	Dummy equals one if there is a major shareholder which holds between 5-25% of shares	Negative	Agency Theory	Datastream
Major Shareholder 25-50% (0,1)	Dummy equals one if there is a major shareholder which holds between 25-50% of shares	Negative	Agency Theory	Datastream
Compensation				
Variable compensation coefficient	Proportion of variable to total director compensation as reported in the firm's annual reports	Positive	Agency Theory	Annual Report
Board compensation	Logged average per director compensation calculated as total supervisory board compensation divided by board size	Positive	Agency Theory	Annual Report
CEO specification				
CEO tenure	Tenure of the CEO	Positive	Agency Theory	Eikon Internet Research
Firm Characteristics Control Variables				
Firm Size				
Size	Logged asset value	Positive	Agency Theory	Datastream
Tobin's q	Market value of common stock plus the book value of total debt divided by the book value of total assets	Positive	Agency Theory	Datastream
Employees	Logged number of employees	Positive	Agency Theory	Datastream
Sales	Logged sales value in EUR	Positive	Agency Theory	Datastream
Asset Ratios				
Risk	Cash Flow risk measured as SD of last 5 years return on firms assets	Positive	Agency Theory	Datastream
Tangible Assets	Ratio of property plant and equipment over total assets	Positive	Agency Theory	Datastream
Leverage	Ratio of debt over assets	Negative	Agency Theory	Datastream
Investment activities	Ratio of capital expenditures over assets	Negative	Agency Theory	Datastream
Remuneration in Crises Control Variable				
Crisis (0,1)	Dummy equals one if economy is in financial and economic crisis	Negative	Agency Theory	OECD

3.3.4 Cronyism Effects

In Table 1: Variable Definition and Description, hypothesized and expected effects of the above mentioned variables are shown. To detect cronyism especially the chairman characteristic of *Previous executive* is important as well as the *Chairman tenure* and the *CEO tenure*. We perceive these variables to express in the best way how strong the chairman is entrenched in the company, how strong the network of the chairmen is and how close the chairman is connected to the executive board. We expect cronyism effects to be stronger the longer the CEO and chairman work together and the longer the chairman has worked in the company itself. Other variables that we identified to be especially significant in indicating cronyism are: *Sales, Size* and *Tobin's q*. If a rise in all of them happens at the same time, than the cronyism effects cannot be detected, because rising salaries might have been influenced by an increased overall performance. One should be more suspicious if these values indicate a downturn in economic performance of the company but the salary of the chairman increases.

3.3.5 Descriptive Statistics & Correlation Matrix

To test for a possible multicollinearity between our variables in the base case, a correlation matrix generated by EViews is used (Table A 9: Pooled OLS Regression: Correlation Matrix). As the table shows, there is only correlation above the critical threshold of 0.8 (Brooks, 2014) identified in the case of *Sales* and *Employees*, therefore *Sales* gets excluded. To raise the validity of our results we lower the threshold to 0.6. This is motivated by a high adjusted R-squared and high standard errors of the excluded variables. Further variables have to be excluded therefore, these are *Board compensation*, *Size* and *Tangible Assets*. Table A 13: Fixed Effects OLS Regression: Descriptive Statistics shows the descriptive statistics of all variables used. Testing on multicollinearity in the fixed compensation scenario (Hypothesis 2) shows that multicollinearity is also present (). We exclude *Employees* and *Tangible assets* therefore. In the variable compensation scenario we exclude the *Variable compensation quotient*, *Employees* and *Investment activities*, the descriptive statistics are presented at the bottom of Table A 13: Fixed Effects OLS Regression: Descriptive Statistics.

3.4 Econometric Approach

Our econometric approach to test upon our hypotheses is in line with previous literature. We apply multivariate tests to examine the relationship between our explanatory variable and the control variables on chairman compensation. Hypothesis one and three are tested using the following OLS regression model which is already accounted for multicollinearity:

Regression (1)

$$Chairman\ compensation = \alpha + \beta_1 CEO\ Compensation_{it} + \beta_{2-12} Chairman\ Characteristics_{it} + \beta_{13-22} Corporate\ Governance_{it} + \beta_{23-27} Firm\ Characteristics_{it} + \beta_{28} Crisis_{it} + \varepsilon_{it}$$

$i = 1, \dots N$ stands for each cross-section (firm), $t = 1, \dots T$ stands for each period (2006-2014). α is the intercept and ε_{it} is the error term. β_{1-28} are the estimated coefficients for the variables introduced in chapter 3.3 VARIABLES. As already mentioned we did control for multicollinearity and autocorrelation. Heteroscedasticity is controlled for by including heteroscedasticity-consistent standard errors via the EViews coefficient covariance method 'White (diagonal)'. Since we are dealing with panel data we need to test if fixed or random effects should be used to solve heterogeneity in the time and cross section. As we include the dummy *Crisis* we are not controlling for heterogeneity in the time dimension. Regarding the cross section we apply at first a redundant fixed effects test to determine if fixed effects are necessary or not (Brooks, 2014). The fixed effects specification forced EViews to drop the variables *Founder* and *External director with industry experience*. The cross section F-Test and χ^2 p-values indicate that the restrictions are not supported by the data. Therefore we cannot apply a pooled sample (Table A 14: Redundant Fixed Effects Test (CSU)). For consistency reasons we present the empirical results in section 4.1. EMPIRICAL RESULTS CHAIRMAN COMPENSATION. In line with Brooks (2014) we estimate a random effects model to test if random effects are more suitable regarding the cross section. A Hausman specification test is made to distinguish if the random effects are uncorrelated with the explanatory variables. The p-value for the test is less than 1% (Table A 15: Hausman Test). This indicates that the random effects model is not applicable. The fixed effects specification is preferred therefore.

To test the relationship between fixed chairman and fixed CEO compensation levels (Hypothesis two) an additional OLS regression model is constructed:

Regression (2)

$$Fixed\ chairman\ compensation = \alpha + \beta_1 Fixed\ CEO\ Compensation_{it} + \beta_{2-10} Chairman\ Characteristics_{it} + \beta_{11-21} Corporate\ Governance_{it} + \beta_{22-27} Firm\ Characteristics_{it} + \beta_{28} Crisis_{it} + \varepsilon_{it}$$

Fixed chairman compensation is the fixed part of the chairman remuneration (3.3.2 EXPLANATORY VARIABLE). *Fixed CEO compensation* is the fixed part that the CEO earns no matter how the company performs it is lagged by one year. We also incorporated pension payments into that figure. Just like for total compensation, the data was retrieved from the company's annual reports. The control variables are the same as in our first OLS regression but since we used a fixed effects model for this regression as well we are forced to drop the variables *Founder* and *External director with industry experience*. In a second step we investigate the effects of variable compensation in the same manner. It is calculated as:

$$Variable\ compensation = Total\ compensation - Fixed\ compensation.$$

Regression (3)

$$Variable\ chairman\ compensation = \alpha + \beta_1 Variable\ CEO\ Compensation_{it} + \beta_{2-10} Chairman\ Characteristics_{it} + \beta_{11-20} Corporate\ Governance_{it} + \beta_{21-26} Firm\ Characteristics_{it} + \beta_{27} Crisis_{it} + \varepsilon_{it}$$

The results of the performed regressions are presented in the following chapter.

4 Regression Analysis & Discussion

4.1 Empirical Results: Chairman Compensation

In this section we show at first the empirical results of Regression (1) and distinguish between the pooled and the fixed effects outcomes. In the next chapter the results of Regression (2) and (3) are shown. In chapter 4.3 DISCUSSION a thorough discussion of our outcomes is given. In chapter 4.4 ROBUSTNESS, VALIDITY & RELIABILITY we look critically at our research regarding the robustness of our outcomes.

Our results of the OLS regression of *Chairman Compensation* are presented in the following. Table 2: Pooled Regression shows the results for the pooled regression, Table 3: Fixed Effects Regression the results for the fixed effects regression. As indicated in 3.4 ECONOMETRIC APPROACH, we use the fixed effects model to draw final conclusions. To compare the German outcomes with the Swedish ones we include the pooled outputs as Oxelheim & Clarkson's study (2014) relies on a pooled regression. In each regression analysis we use a forwards stepwise approach.

We always present five models according to the five stages analyzed. In the first setting the model consists of just the dependent and the independent variable. In the second one the first set of control variables, Chairman Characteristics gets added. In the next steps the control groups according to their perceived importance Corporate Governance Characteristics, Firm Characteristics and the Crisis dummy get added. This approach is identical for all the following regression outputs. When interpreting the results one has to keep in mind that some variables are logged while others are not.

4.1.1 Pooled Regression

The following table shows the pooled regression outputs. Due to multicollinearity issues the variables *Board compensation*, *Sales*, *Size* and *Tangible Assets* are excluded from the model. In the first model we can observe a positive relationship between *CEO compensation* and *Chairman compensation* (0.47) at the 1% significance level. This result is similar across each of the five models. In model five, which includes all sets of control variables, we see a significant coefficient at the 1% level of 0.38. This coefficient is slightly lower than in the first model. Furthermore we see significantly positive relationships between *Additional directorships*, *Chairman tenure*, *Board size* and the *Variable compensation coefficient*, on

Chairman compensation. A higher *Risk* level has a negative impact on *Chairman compensation*. These results provide evidence for our first hypothesis, stating the existence of a positive relationship between chairman and CEO compensation levels. Hypothesis three has to be neglected though as the *Crisis* dummy is not significant in model five.

Table 2: Pooled Regression on Chairman compensation

Pooled OLS estimation of Chairman compensation 2006-2014

Dependent variable	(1)	(2)	(3)	(4)	(5)
	Chairman compensation (ln)				
Independent variable					
CEO compensation (ln)	0.466***	0.457***	0.399***	0.380***	0.376**
	(6.94)	(7.44)	(5.71)	(5.16)	(5.04)
Chairman Characteristics					
Academic (0,1)		0.028	-0.006	-0.037	-0.028
		(0.31)	(-0.06)	(-0.36)	(-0.27)
Additional directorships (0,1)		0.528***	0.583***	0.564***	0.560***
		(2.95)	(3.82)	(3.43)	(3.38)
Age (0,1)		0.054	0.040	0.074	0.077
		(0.63)	(0.51)	(0.88)	(0.90)
External director with industry experience (0,1)		0.125	0.009	-0.118	-0.121
		(0.94)	(0.07)	(-0.89)	(-0.91)
Founder (0,1)		0.100	0.125	-0.030	-0.031
		(0.65)	(0.83)	(-0.19)	(-0.20)
Gender (0,1)		-0.605***	-0.249	-0.217	-0.221
		(-2.68)	(-0.93)	(0.83)	(-0.84)
International education (0,1)		-0.074	0.014	-0.057	-0.054
		(-0.88)	(0.16)	(-0.62)	(-0.58)
International experience (0,1)		0.020	0.095	0.103	0.101
		0.27	(1.19)	(1.38)	(1.34)
Previous executive (0,1)		0.273**	0.075	-0.005	-0.007
		2.43	(0.51)	(-0.04)	(-0.05)
Substantial equity ownership (0,1)		0.359**	0.075	0.035	-0.041
		2.39	(0.51)	(0.24)	(-0.29)
Chairman tenure		0.014	0.023*	0.024*	0.024*
		(1.34)	(1.74)	(1.68)	(1.65)
Corporate Governance Characteristics					
Anglo American (0,1)			0.128	0.175	0.175
			(1.28)	(1.61)	(1.62)
Board size			0.031**	0.024*	0.024*
			(2.44)	(1.93)	(1.92)
Busy (0,1)			-0.077	0.087	0.087
			(-0.80)	(0.90)	(0.90)
CEO tenure			0.005	0.002	0.002
			(0.39)	(0.18)	(0.15)
Financial industry knowledge (0,1)			-0.001	-0.049	-0.044
			(-0.01)	(-0.58)	(-0.53)
Internationals			-0.223	-0.591	-0.600
			(-0.51)	(-1.42)	(-1.45)
No major shareholder (0,1)			0.098	0.065	0.059
			(0.91)	(0.59)	(0.53)
Major shareholder 5-25% (0,1)			0.116	0.070	0.066
			(1.28)	(0.77)	(0.72)
Major shareholder 25-50% (0,1)			-0.081	-0.106	-0.108
			(-0.61)	(-0.80)	(-0.80)
Variable compensation quotient			0.628***	0.611***	0.610***
			(5.23)	(4.94)	(4.93)
Firm Characteristics					
Employees (ln)				0.052	0.052
				(1.34)	(1.34)
Investment activities				-0.723	-0.759
				(-0.68)	(-071)
Leverage				-0.388	-0.386
				(-1.11)	(-1.12)
Risk				-0.032*	-0.021*
				(-1.73)	(-1.72)
Tobin's q				0.071	0.066
				(1.22)	(1.11)
Remuneration in Crisis					
Crisis (0,1)					-0.037
					(-0.61)
Constant	5.311***	4.655***	4.643***	4.781***	4.876***
	(5.15)	(4.89)	(4.49)	(4.32)	(4.38)
N	260	260	260	257	257
Adjusted R-sq	0.199	0.272	0.392	0.404	0.402

The table shows the results of the estimation of the pooled OLS in columns 1-5. The dependent variable for each estimation is the natural logarithm of Chairman compensation for the year t. The independent Variable CEO compensation is lagged by one year. The level of statistical significance at the 1, 5 and 10% level is denoted with ***,** and * respectively. T-statistics are reported in parentheses. All estimations include robust standard errors.

4.1.2 Fixed Effects Regression

As explained above, our results and conclusions are based on the fixed effects model as this is in line with the common approach on panel data (Brooks, 2014). Our econometric approach is the same as in the case of the pooled regression except of the exclusion of two control variables (*External director with industry experience* and *Founder*) due to their high correlation. The OLS model is based on Regression (1). The forward stepwise approach is used again. At first we take a look at the direct relationship between the *CEO compensation* and *Chairman compensation*. The results provide a strong support for a positive relationship between the two. The coefficient of 0.34 is significant at the 1% level. The adjusted R-squared of 0.54 indicates that the fixed effects model does have a better fit than the pooled one with an adjusted R-squared of 0.20 (Brooks, 2014).

Following the stepwise approach we add the Chairman Characteristics into our model. There is again a significant positive relationship between *CEO compensation* and *Chairman compensation* (0.31) at the 1% level. The only control variable that has an influence on *Chairman compensation* is *Substantial equity ownership* (-0.29). This is contradictory to our expectation. According to this outcome, a chairman with substantial equity ownership cannot use or does not want to use its power to raise his remuneration. The adjusted R-squared stays constant at 0.54.

In the third model we add the Corporate Governance Characteristics control group. The results show again a significant positive relationship between *CEO compensation* and *Chairman compensation* (0.33) at the 1% level. *Substantial equity ownership* keeps its negative influence (-0.37). Out of the ten governance criteria only two have a significant influence on the dependent variable. *CEO tenure* has a positive impact on chairman remuneration (0.02), which is in line with the expectations. The other significant variable is the *Variable compensation quotient* (0.40). This indicates that if the variable percentage of total compensation rises, total *Chairman compensation* rises. That effect was also expected since a rise in variable compensation indicates that the firm is performing well, therefore it is legitimate that the chairman will also get a slice of the cake in line with agency theory (2.3.1 PRINCIPLES AND ELEMENTS OF COMPENSATION). By including the second control group, the R-squared rises to 0.56, indicating that the fit of the model is slightly higher if Corporate Governance Characteristics are controlled for.

The fourth model incorporates firm individualities into the regression. Just like before, *CEO compensation* has a positive significant effect on the 1% level (0.35). *Substantial equity ownership* is again having a negative influence on the compensation (-0.46) but only at the 10% level. A rise in variable compensation keeps its positive impact on total *Chairman compensation* (0.44). Regarding Firm Characteristics, only *Leverage* has a significant impact. A higher level of firm leverage reduces *Chairman compensation* (-1.36). This is in line with our expectations; through higher leverage a lower need for monitoring by the chairman is needed as the creditors act as a monitoring institution already (2.4.2 CHARACTERISTICS).

In the last model we include the dummy to control for the possible effects of the financial crisis on *Chairman compensation*. Model five is used to draw our final conclusions. *CEO compensation* has a significantly positive effect on *Chairman compensation* (0.33) at the 1% level. Also *Academic*, *Anglo American* and the *Variable compensation quotient* have a positive effect on the compensation of chairmen of the DAX30. The remuneration is influenced negatively by a rise in *Board size* (-0.04). This is against our expectations as we anticipated that a rising board size enhances coordination efforts and therefore a higher remuneration is paid to the chairman. Our results predict the contrary though, which could be explained by the argument that the lower effectiveness and increased number of remunerated members can lead to a lower compensation. In model five also a rise in *Leverage* has a negative impact (-1.40) on *Chairman compensation*. The results show that the *Crisis* had a negative impact on *Chairman compensation* as anticipated (-0.11). This is in line with a PwC study (Hösch, 2010).

Concluding it can be said that in all four control groups we find significant variables but most of the variables we considered to influence *Chairman compensation* are not significant. Of the 26 variables that we control for only seven show a significant influence in the end. Nevertheless we come to the conclusion that our Hypothesis 1 ‘there is a positive relationship between CEO compensation and chairman compensation’ gets supported. Hypothesis 3, ‘there is a significant impact of the financial crisis on chairman compensation’, gets also supported. The financial crisis had a statistically significant influence on chairman remuneration.

Table 3: Fixed Effects Regression on Chairman compensate

Fixed Effects OLS estimation of Chairman compensation 2006- 2014

Dependent variable	(1)	(2)	(3)	(4)	(5)
	Chairman compensation (ln)				
Independent variable					
CEO compensation (ln)	0.342***	0.308***	0.333***	0.347***	0.331***
	(4.98)	(3.91)	(4.21)	(4.48)	(4.06)
Chairman Characteristics					
Academic (0,1)		0.137	0.137	0.140	0.176*
		(1.37)	(1.15)	(1.28)	(1.65)
Additional directorships (0,1)		-0.034	-0.054	0.006	-0.006
		(-0.16)	(-0.27)	(0.03)	(-0.03)
Age (0,1)		-0.020	0.022	0.053	0.049
		(-0.19)	(0.22)	(0.51)	(0.48)
Gender (0,1)		0.165	0.384	0.254	0.270
		(0.78)	(1.59)	(0.98)	(0.97)
International education (0,1)		0.009	0.100	0.090	0.111
		(0.08)	0.92)	(0.75)	(0.93)
International experience (0,1)		0.011	-0.018	-0.043	-0.048
		(0.14)	(-0.20)	(-0.44)	(-0.51)
Previous executive (0,1)		0.028	-0.004	0.094	0.116
		(0.16)	(-0.02)	(0.58)	(0.73)
Substantial equity ownership (0,1)		-0.294**	-0.368**	-0.458*	-0.399
		(-2.16)	(-2.32)	(-1.83)	(-1.60)
Chairman tenure		0.021	0.017	0.018	0.018
		(1.48)	(1.19)	(1.46)	(1.47)
Corporate Governance Characteristics					
Anglo American (0,1)			0.224	0.207	0.217*
			(1.64)	(1.60)	(1.76)
Board size			-0.030	-0.032	-0.039*
			(-1.22)	(-1.37)	(-1.75)
Busy (0,1)			0.048	0.115	0.105
			(0.40)	(0.88)	(0.80)
CEO tenure			0.024*	0.020	0.020
			(1.80)	(1.53)	(1.57)
Financial industry knowledge (0,1)			-0.019	-0.033	-0.007
			(-0.19)	(-0.31)	(-0.07)
Internationals			-0.253	-0.463	-0.507
			(-0.43)	(-0.75)	(-0.84)
No major shareholder (0,1)			0.076	0.058	0.013
			(0.60)	(0.50)	(0.11)
Major shareholder 5-25% (0,1)			-0.012	-0.021	-0.062
			(-0.12)	(-0.22)	(-0.62)
Major shareholder 25-50% (0,1)			0.129	0.165	0.185
			(0.67)	(0.90)	(1.01)
Variable compensation quotient			0.397**	0.442***	0.444***
			(2.48)	(2.76)	(2.78)
Firm Characteristics					
Investment activities				1.088	0.668
				(0.96)	(0.60)
Leverage				-1.361**	-1.396**
				(-2.20)	(-2.35)
Risk				0.018	0.017
				(1.40)	(1.35)
Size (ln)				0.223	0.200
				(1.57)	(1.43)
Tobin's q				0.076	0.024
				(-0.71)	(-0.22)
Remuneration in Crisis					
Crisis (0,1)					-0.109*
					(-1.88)
Constant	7.202***	7.568***	7.333***	3.186	4.091
	(6.89)	(6.78)	5.80	(1.20)	(1.46)
N	260	260	260	257	257
Adjusted R-sq	0.540	0.536	0.555	0.576	0.581

The table shows the results of the estimation of the pooled OLS in columns 1-5. The dependent variable for each estimation is the natural logarithm of Chairman compensation for the year t. The independent Variable CEO compensation is lagged by one year. The level of statistical significance at the 1, 5 and 10% level is denoted with ***,** and * respectively. T-statistics are reported in parentheses. All estimations include robust standard errors.

4.2 Empirical Results: Fixed vs. Variable Chairman Compensation

4.2.1 Fixed Compensation

This section is dedicated to test upon Hypothesis 2. Using Regressions (2) and (3) we estimate the relationship between *Fixed chairman compensation* and *Fixed CEO compensation* by taking into consideration our control groups. For consistency and comparative purposes we also conduct an OLS regression on the relationship between *Variable chairman compensation* and *Variable CEO compensation*. We start of by interpreting the fixed effects model of the regression as this has proven to be the right econometric approach again. Furthermore there is no pooled OLS research conducted on this topic before to compare with.

Once again we take a forward stepwise approach with the same control groups as before. Due to multicollinearity issues we exclude *Employees* and *Tangible assets* from our original pool of variables. The results for the first model show a positive relationship (0.55) between *Fixed CEO compensation* and *Fixed chairman compensation* at the 1% level. The model already has a good fit with an adjusted R-squared of 0.48. Adding the control group Chairman Characteristics shows that the *Fixed CEO compensation* keeps its positive (0.45) significant impact. Furthermore chairman *Age* (0.30), *Gender* (1.33) and *International experience* (0.24) have a positive impact on the fixed chairman remuneration. The other variables are not significant. The adjusted R-squared is at 0.50.

The results for the third group show again a positive correlation between the two compensation figures (0.34). Regarding Chairman Characteristics out of the nine variables only *Gender* stays significant and has a positive impact (0.49) on *Fixed chairman compensation*. Four out of the eleven Corporate Governance controls show a statistically significant impact on the dependent variable. *Board Size* has a slightly negative (-0.05) impact, indicating that an additional board member results in lower fixed chairman salary. The *CEO tenure* has a slightly positive (0.04) impact, indicating that the longer the CEO is in place, the higher the *Fixed chairman compensation* will be. In the case of a major shareholder being present, holding 5-25% of the company's stock, a negative (-0.30) impact is observed. A rise in the *Variable compensation quotient* results in lower *Fixed chairman compensation* (-1.47) if the variable part of supervisory board compensation rises, the chairman fixed compensation declines. This effect is quite obvious as the chairman is part of the supervisory board. Whenever the remuneration is drawn towards a higher flexible portion, the fixed portion will decline. The fit of our model

increases by including the second control group, the adjusted R-squared jumps from 0.50 to 0.68.

In the next step we include Firm Characteristics. The relationship between the two compensation figures stays the same (0.29). Regarding Chairman Characteristics, *Gender* does not have a statistically significant impact anymore while *Academic* (0.24), *International education* (0.19) and *Substantial equity ownership* (-0.25) are significant on the 10% level. This indicates that chairmen with an academic title and an international education get a higher fixed compensation. A substantial equity ownership reduces remuneration though. In the Corporate Governance control group the results show four significant variables. The variables *CEO tenure, Major shareholder 5-25%* and *Variable compensation quotient* have the same impact as in model three. *Board size* is not significant in the fourth model, *Internationals* becomes significant though. A higher amount of internationals on the board has a negative impact (-1.75) on *Fixed chairman compensation*. The only Firm characteristic that is statistically significant is *Sales,* it can be disregarded though as it does not show an economic significance. Including the third control group brings us to an even higher fit, the adjusted R-squared is at 0.71.

The final step in our forward stepwise approach is to control for the crisis. We use this model to draw final conclusions on fixed chairmen salaries. First of all our results show a significant positive influence of *Fixed CEO compensation* on *Fixed chairman compensation* (0.28) at the 1% level. Two variables regarding the personality of the chairman have a significant impact as well. *Academic* (0.26) and *International education* (0.20) have a positive influence on fixed compensation. There are four Corporate Governance Characteristics with significant influence. *Chairman compensation* is negatively affected by a rise in *Internationals* on the board (-1.67), a *major shareholder* holding between 5-25% of the company's stocks (-0.25) and a rise in the proportion of variable to total compensation (-1.47). A rise in fixed compensation is triggered by a rising *CEO tenure* (0.04). The control group Firm Characteristics has no influence since none of the variables shows statistical and economic significance. The crisis resulted in a lower *Fixed chairman compensation* (-0,01). The adjusted R-squared is at 0.71.

Overall we can conclude that Hypothesis 2 gets supported, 'there is a positive relationship between Fixed CEO compensation and Fixed chairman compensation'. In the next step we take a look at the variable compensation parts for consistency and comparative purposes.

Table 4: Fixed Effects Regression: Fixed Chairman compensation

Fixed Effects OLS estimation of Fixed chairman compensation 2006-2014

Dependent variable	(1)	(2)	(3)	(4)	(5)
	Fixed chairman compensation (ln)				
Independent variable					
Fixed CEO compensation (ln)	0.553***	0.451***	0.342***	0.294***	0.283***
	(5.08)	(3.81)	(4.04)	(3.71)	(3.50)
Chairman Characteristics					
Academic (0,1)		0.057	0.180	0.235*	0.256**
		(0.38)	(1.47)	(1.92)	(2.14)
Additional directorships (0,1)		-0.038	-0.028	0.129	0.109
		(-0.17)	(-0.12)	(0.41)	(0.34)
Age (0,1)		0.301**	0.120	0.164	0.162
		(2.43)	(1.12)	(1.53)	(1.53)
Gender (0,1)		1.325***	0.486*	0.342	0.376
		(5.11)	(1.75)	(1.10)	81.17)
International education (0,1)		0.157	0.147	0.187*	0.203*
		(1.31)	(1.46)	(1.68)	(1.82)
International experience (0,1)		0.237*	-0.056	-0.079	-0.084
		(1.85)	(-0.54)	(-0.71)	(-0.77)
Previous executive (0,1)		-0.074	-0.204	-0.162	-0.135
		(-0.38)	(-1.31)	(-1.04)	(-0.85)
Substantial equity ownership (0,1)		0.058	-0.254	-0.410*	-0.346
		(0.31)	(-1.41)	(-1.95)	(-1.54)
Chairman tenure		0.012	0.020	0.016	0.017
		(0.57)	(1.50)	(1.32)	(1.38)
Corporate Governance Characteristics					
Anglo American (0,1)			0.185	0.177	0.186
			(1.44)	(1.40)	(1.51)
Board compensation (ln)			0.000	0.000	0.000
			(0.00)	(0.11)	(0.14)
Board size			-0.053*	-0.028	-0.038
			(-1.91)	(-1.15)	(-1.54)
Busy (0,1)			0.013	0.109	0.097
			(0.11)	(0.91	(0.78)
CEO tenure			0.042***	0.043***	0.042*
			(3.27)	(3.60)	(3.60)
Financial industry knowledge (0,1)			0.061	-0.011	0.020
			(0.52)	(-0.10)	(0.18)
Internationals			-0.754	-1.711**	-1.666**
			(-1.08)	(-2.42)	(-2.37)
No major shareholder (0,1)			-0.216	-0.096	-0.147
			(-1.59)	(-0.75)	(-1.14)
Major shareholder 5-25% (0,1)			-0.300***	-0.208**	-0.248***
			(-2.73)	(-2.30)	(-2.69)
Major shareholder 25-50% (0,1)			-0.194	-0.021	-0.010
			(-1.00)	(-0.12)	(-0.06)
Variable compensation quotient			-1.474***	-1.476***	-1.469**
			(-8.53)	(-8.66)	(-8.59)
Firm Characteristics					
Investment activities				0.395	0.037
				(0.26)	(0.02)
Leverage				-0.235	-0.274
				(-0.43)	(-0.52)
Risk				0.020	0.021
				(1.48)	(1.55)
Sales (ln)				0.000***	0.000***
				(5.34)	(4.63)
Size (ln)				0.000	0.000
				(0.02)	(0.13)
Tobin's q				0.075	0.033
				(0.90)	(0.41)
Remuneration in Crisis					
Crisis (0,1)					-0.096*
					(-1.63)
Constant	3.968**	5.017****	8.101***	7.471***	7.928***
	(2.56)	(3.05)	(6.59)	(6.00)	(6.03)
N	259	259	259	256	256
Adjusted R-sq	0.477	0.502	0.681	0.711	0.713

The table shows the results of the estimation of the fixed effects OLS in columns 1-5. The dependent variable for each estimation is the natural logarithm of Fixed chairman compensation for the year t. The independent variable Fixed CEO compensation is lagged by one year. The level of statistical significance at the 1, 5 and 10% level is denoted with ***,** and * respectively. T-statistics are reported in parentheses. All estimations include robust standard errors.

4.2.2 Variable Compensation

Besides the fixed compensation part, Chairmen of DAX30 companies often receive a variable, success related compensation. Although this variable part of the compensation was reduced during the crisis (Hösch, 2010) and is being reduced more and more (Kasper & Hönsch, 2012) it is still value adding to take a closer look at it and compare the outcomes to the ones of the fixed compensation.

The research approach is exactly the same as before. An OLS regression is conducted with *Variable chairman compensation* being the dependent variable. Due to multicollinearity issues the variables *Variable compensation quotient*, *Employees* and *Investment activities* are excluded from the regression.

The results of this regression are rather surprising. There is no significant relationship between *Variable chairman compensation* and *Variable CEO compensation*. Nevertheless, nine control variables have a statistic and economic impact. An increase in *Academic*, *Busy*, *Financial Industry knowledge*, *Leverage*, *Tobin's q* and the presence of the financial *Crisis* yields in a higher variable compensation. On the other side, a chairman being female and the presence of major shareholders yields to a lower variable compensation. Most of the results of the controls are in line with the expectations. The most obvious is the better the firm performs the higher the compensation (*Tobin's q*). The sign of *Crisis* is surprising though as we expected a lower variable compensation in times of economic turbulences and since fixed compensation is decreasing during a crisis. One explanation for this could be that it is especially important to have a thorough monitoring body in times of economic downturns. To make sure that this gets achieved incentivizing the chairman by a higher variable compensation element might be wise. This element could be related to monitoring performance of the supervisory board instead of firm performance. The significance of *Crisis* is challenged in 4.4.3 SENSITIVITY ANALYSIS.

Table 5: Fixed Effects Regression: Variable Chairman compensation

Fixed Effects OLS estimation of Variable chairman compensation 2006-2014

Dependent variable	(1)	(2)	(3)	(4)	(5)
	Variable chairman compensation (ln)				
Independent variable					
Variable CEO compensation (ln)	0.370**	0.351*	0.225	0.247	0.311
	(2.04)	(1.75)	(0.92)	(1.03)	(1.31)
Chairman Characteristics					
Academic (0,1)		6.468	6.205	7.776**	7.063*
		(1.30)	(1.46)	(1.98)	(1.76)
Additional directorships (0,1)		0.387	-3.909	-2.668	-1.921
		(0.09)	(-0.87)	(-0.62)	(-0.48)
Age (0,1)		-4.201	-3.903	-3.783	-3.583
		(-1.37)	(-1.30)	(-1.31)	(-1.20)
Gender (0,1)		-30.325***	-25.509***	-25.225**	-26.496**
		(-2.85)	(-2.45)	(-2.28)	(-2.49)
International education (0,1)		-7.441*	-6.241*	-4.769	-5.495
		(-1.90)	(-1.68)	(-1.32)	(-1.52)
International experience (0,1)		-9.606**	-2.993	-1.809	-1.432
		(-2.33)	(-0.62)	(-0.40)	(-0.31)
Previous executive (0,1)		-6.038	-2.926	-2.864	-3.865
		(-1.27)	(-0.60)	(-0.61)	(-0.80)
Substantial equity ownership (0,1)		-4.177	-2.178	-7.078	-9.726
		(-1.27)	(-0.48)	(-1.03)	(-1.34)
Chairman tenure		0.054	0.177	0.320	0.319
		(0.12)	(0.40)	(0.69)	(0.69)
Corporate Governance Characteristics					
Anglo American (0,1)			-1.129	-1.285	-1.707
			(-0.24)	(-0.27)	(-0.36)
Board compensation (ln)			0.000*	0.000**	0.000*
			(1.96)	(2.02)	(1.73)
Board size			-0.432	-0.438	-0.009
			(-0.50)	(-0.49)	(-0.01)
Busy (0,1)			8.019*	6.333	6.884*
			(1.91)	(1.47)	(1.65)
CEO tenure			-0.025	0.228	0.256
			(-0.06)	(0.54)	(0.60)
Financial industry knowledge (0,1)			6.423**	8.528**	7.134**
			(2.07)	(2.58)	(2.18)
Internationals			-50.698**	-34.829	-35.082
			(-2.00)	(-1.29)	(-1.29)
No major shareholder (0,1)			-3.627	-4.036	-2.213
			(-0.66)	(-0.74)	(-0.37)
Major shareholder 5-25% (0,1)			-12.137***	-11.985***	-10.334**
			(-3.00)	(-3.17)	(-2.51)
Major shareholder 25-50% (0,1)			-18.528***	-15.876***	-16.144***
			(-3.25)	(-2.85)	(-2.75)
Firm Characteristics					
Investment activities				29.939	42.687
				(0.71)	(1.03)
Leverage				34.028**	35.490**
				(2.16)	(2.27)
Risk				0.732	0.710
				(1.30)	(1.28)
Sales (ln)				0.000	0.000
				(-0.48)	(0.11)
Size (ln)				0.000	0.000
				(-1.20)	(-1.36)
Tobin's q				9.003***	10.604***
				(2.66)	(3.09)
Remuneration in Crisis					
Crisis (0,1)					3.803*
					(1.83)
Constant	-5.814**	0.808	14.033	-14.230	-28.752
	(-2.31)	(0.10)	(0.81)	(-0.70)	(-1.29)
N	254	254	254	251	251
Adjusted R-sq	0.375	0.407	0.463	0.479	0.486

The table shows the results of the estimation of the fixed effects OLS in columns 1-5. The dependent variable for each estimation is the natural logarithm of Variable chairman compensation for the year t. The independent variable Variable CEO compensation is lagged by one year. The level of statistical significance at the 1, 5 and 10% level is denoted with ***,** and * respectively. T-statistics are reported in parentheses. All estimations include robust standard errors

4.3 Discussion

In this study we took various empirical approaches to investigate on possible cronyism between the chairmen and the CEOs of German DAX30 companies. The foundation of this research ground on the principal agent theory. In the first step a **pooled OLS regression** was conducted to compare it to the outcomes of Oxelheim & Clarkson's study (2014) on the Swedish market. The comparison shows that various variables that are significant for the Swedish market are not significant in the German study. These are regarding the fact if the CEO is on the board (not possible in Germany), chairman age, Chairman tenure, previous involvement in the firm, international experience and voting power of the chairman and of the largest shareholder. In Germany significant influence factors on *Chairman compensation* that are not relevant in Sweden are additional directorships, the *Variable compensation quotient* and the *Risk* of the firm. Three variables are relevant in both countries. *CEO compensation* is highly significant; the coefficients are even the same (0.38). *Chairman tenure* is also important in both markets. A higher *tenure* has a negative effect on remuneration in Sweden whereas in Germany the relation is contrary. A higher *Board size* has a positive effect in both markets, contrary to Ryan & Wiggins (2004) findings.

Concluding, the comparison shows that there are some similarities in determinants of chairman compensation between the two countries, especially the same impact of a rise in CEO compensation is remarkable. Nevertheless even this result and a positive influence was expected in both cases. Since there is quite a variation in the impact of the control variables though we conclude that the determinants of chairman compensation are different in both countries. This does not facilitate to draw interferences of cronyism.

To draw a conclusion if cronyism also exists in the German market we extended the original approach and conducted the analysis controlling for **fixed effects**. The results show a positive relation between CEO and Chairman compensation. Furthermore compensation rises if the chairman has an academic background and if at least one Anglo-American is on the board. Compensation decreases in an increase of the board size and in leverage. A rise in the proportion of variable to fixed compensation increases overall compensation. This indicates that if the firm is doing well, the compensation will rise. The significantly negative impact of the crisis fits into that picture. In times of uncertain economic prospects the chairman compensation reacts appropriately and decreases. Both outcomes contradict the idea of cronyism as we expect that

one sign for cronyism would be a rising compensation in states of poor economic performance as well.

The presence of cronyism is also contradicted by the non-significance of the cronyism related variables *Previous executive*, *Chairman tenure*, *CEO tenure*, *Size* and *Tobin's q* (3.3.4 CRONYISM EFFECTS). Especially the insignificance of *Previous executive* is notable as this variable has a significant positive influence in the Swedish case and the conclusion on the existence of cronyism in Sweden drawn by Oxelheim & Clarkson (2014) is based on this.

In the Swedish approach, the variable part of compensation is proxied by a rise in CEO remuneration since chairman compensation is not split into a success and non-success related part. In Germany the variable and the fixed parts get disclosed, therefore we conducted two additional regressions to test for the determinants of fixed and variable chairman compensation. The outcomes for the fixed part regression show that chairman compensation is determined by eight variables. Compensation is positively affected by a rise in *Fixed CEO compensation*, *Academic*, *International education* and *CEO tenure*. *Internationals*, *Major shareholder 5-25%*, *Variable compensation quotient* and *Crisis* have a negative impact. Compared to the determinants of total compensation we observe a disparity to fixed compensation. The fixed part is influenced by the international education of the chairman, the tenure of the CEO and the presence of a major shareholder. These determinants are not significant for the total compensation though. In turn, the total compensation is influenced by an Anglo-American on the board, the size of the board and the leverage ratio of the firm. These variables do not affect the fixed compensation. To conclude, one can say that the total compensation is stronger influenced by board characteristics and also firm characteristics which do not influence the fixed part at all. Regarding our suspicion of cronyism we do not find much proof in the fixed compensation part as well. The cronyism related variables *Previous executive*, *Chairman tenure, Sales, Size and Tobin's q* are not significant. Only *CEO tenure* has a minor positive impact at the 10% level. The outcome can be interpreted in connection with stewardship theory according to which chairmen get paid for filling out the 'honorable' stewards monitoring role (2.3.1 PRINCIPLES & ELEMENTS OF COMPENSATION). To come to a robust conclusion about the presence of cronyism we look at the variable compensation in the fourth step.

Variable Chairman compensation is determined by *Academic*, *Gender*, *Busy*, *Financial industry knowledge*, *Major shareholder 5-25%*, *Major shareholder 25-50%*, *Risk*, *Tobin's q* and *Crisis*. It is notable that the independent variable *Variable CEO compensation* has no

significant impact. The results also show that the variable part of the salary is influenced by a different set of variables than the fixed part. Three significant variables regarding variable compensation are also impacting the fixed part (*Academic*, *Major shareholder 5-25%* and *Crisis*) while six are only relevant for the variable part. The results show that the crisis had different effects on the compensation components. While fixed compensation decreased, variable compensation increased. This outcome is not as anticipated. We expected to see a decreasing variable compensation during the crisis due to bad firm performance. The contrary is the case, indicating that the variable part of chairman compensation is not necessarily only tied to firm performance but also other factors that might be chairman specific. High variable compensation could also be explained through arguing that the incentives for the supervisory board were set higher because the management and shareholders perceived the monitoring task as more demanding in times of the financial crisis. This argumentation would be in line with agency theory (2.3.1 PRINCIPLES & ELEMENTS OF COMPENSATION). A rising remuneration in times of crises could definitely be an indicator of cronyism. On the other hand none of the six cronyism related variables in this case (*Previous executive*, *Chairman tenure*, *CEO tenure*, *Sales*, *Size* and *Tobin's q*) indicate cronyism.

Due to all the points mentioned above, we conclude that our results do not support a strong relationship that is characterized by cronyism between the chairmen and CEO's of the DAX30 companies. Nevertheless the tendency in the German market to put emphasis on a higher fixed compensation part can indicate a cronyism-characterized relationship in the future.

In our study we tested upon three hypotheses. The results confirm all of them. We conclude that there is a positive relationship between CEO compensation and chairman compensation. Furthermore we see a positive relationship between fixed CEO compensation and fixed chairman compensation. Our research also confirms a significant impact of the financial crisis on chairman compensation.

4.4 Robustness, Validity & Reliability

4.4.1 Data Reliability

In our first approach we considered a couple of additional variables to include into our analysis on determinants of chairman compensation. First of all we took into consideration the fraction of employee representatives on the board. Since the German Code obliges the DAX companies to have 50% of the board members to be employee representatives we decided to drop the

variable since it would not yield any result. Nevertheless this variable has to be considered in future research in other markets.

Another variable that we considered to be important but excluded later concerns major CEO equity ownership. We anticipate that chairman compensation could be affected by a CEO owning a substantial part of the company. This is not present in any DAX company, therefore the variable got excluded. In future research the variable has to be kept in mind though, when looking at listed family firms for example this variable can become crucial.

The impacts of two variables, which we used have to be considered carefully due to few observations. Regarding chairman *Substantial equity ownership*, only in few cases chairmen actually owned a significant portion of the company. The variable has also proven to be insignificant in every model. The value for *Gender* is one in only six out of the 270 observations. The only company to have a female chairman in our sample is Henkel. Therefore the validity of the variable can be questioned. Nevertheless it is significant in regarding variable compensation.

As already outlined above, since some of our variables are logged, while others are not and others are dummies, the interpretation has to be considered carefully. We logged some of our variables to account for non-normality issues and to retrieve more significant outcomes.

To increase the degrees of freedom some unknown values (#na) were **imputed** with a traditional imputation technique. To address this issue the missing data were first of all classified as missing at random (independent from missing values but depended on observed variables). Therefore a mean value imputation, a form of single imputation was conducted by using the arithmetic mean of growth (excel formula: average) to replace the missing value with an approximated value (Uni Köln, 2015). A proxy of the depended variable "chairman compensation" was generated for the following companies (years): Fresenius Medical Care (2006), Heidelberg Cement (2009), Merck (2006, 2007, 2008). Furthermore values were imputed for the independent variable "CEO compensation" for the following firms (years) were generated: Beiersdorf (2006), Daimler (2006), Fresenius (2006), Fresenius Medical Care (2006), Henkel (2006), K+S (2006), Linde (2006). The imputation of the independent variable was not done for Merck and Heidelberg Cement because there were too many data points missing for applying a feasible imputation method. Merck was registered as a DAX30 company

in 2007 and Heidelberg Cement in 2010. Due to the fact that at that time there were no obligation to publish the information for individual persons.[5]

4.4.2 Econometric Model and OLS Assumptions

We regard the quality of the data as a good foundation for our regressions. To make sure that our data and the results of our performed regressions are reliable and a valid interpretation is possible, we control for the five OLS assumptions presented in the table below. The assumptions matter for the study as our outcomes rely on testing H_0 Hypotheses based on *t-statistics*. Since the interpretation of the *t-statistic* depends on the standard errors we want to guarantee robustness.

Table 6: OLS Assumptions & Problems

*Source: Brooks (2014)

Notation / Name	Description	Test
$\boldsymbol{E(\varepsilon_t) = 0}$	Mean is 0 across all error terms	No test needed
$\boldsymbol{Var(\varepsilon_t) = \sigma^2 < \infty}$ **Heteroscedasticity**	Constant variance of error terms	Graphical Depiction; White, Breusch-Pagan, Godfrey, Goldfeld-Quant
$\boldsymbol{Cov(\varepsilon_i, \varepsilon_j) = 0}$ **Autocorrelation**	Covariance between cross sectional error terms is 0	Breusch-Godfrey, Durbin-Watson
$\boldsymbol{Cov(\varepsilon_i, x_i) = 0}$ **Endogeneity**	No relationship between error-term and corresponding explanatory variable	Hausman
$\boldsymbol{\varepsilon_t - N(0, \sigma^2)}$ **Non-Normality**	Error terms are normally distributed	Jarque-Bera test
Multicollinearity	High correlation among explanatory variables.	Correlation Matrix
Non-Linearity	Linear relationship among explanatory and corresponding variable.	Squared Variables

The results of the performed regressions all do have an intercept, so we assume that assumption one is not violated and we have zero mean across all error terms. Assumption two is requiring a constant variance of all error terms. If this assumption does not hold, heteroscedasticity can be assumed. To control for possible heteroscedasticity we included heteroscedastic robust

[5] The same method was applied for doing the imputation of the fixed salaries. Also the same year's data were unknown.

standard errors through the function of white 'diagonal' in EViews. This is a common method in corporate governance panel data estimations according to our supervisors.

Assumption three shall prevent having biased regressions through autocorrelation and demands uncorrelated residuals in the regressions. The Durbin-Watson test for each regression showed that we do not have severe autocorrelation problems, the DW stats were all around 2.

The fourth OLS assumptions shall prevent endogeneity and demands an explanatory variable, which is not correlated with the error term. Violating this assumption can have severe effects and lead to biased coefficients. Endogeneity can be caused by omitted variables (OV) and measurement errors (ME) and is a common problem in corporate governance panel data (Andreas, 2011). According to Oxelheim (2014)[6] estimation problems are created when *'governance choices are made on the basis of the unobservable correlated with the error term in the estimated regression'* and the structures *'(…) arise endogenously because economic actors choose them in response to the governance issue they face'*. When analyzing the structure and causality issues, endogeneity is a major obstacle. Since we deal with a supervisory board issue we have to pay attention to endogeneity. As a problem of a reverse causality, we could assume that an increase in firm performance incorporated in control group Firm characteristics determining *Chairman compensation* can also be influenced by a good monitoring by the chairman (i.e. prevented self-utilization of executives and fulfilled overall business strategy) can lead to a higher firm performance itself.

In this study we tried to cope with OVs by including all the important variables and controls determined in previous research (2.5 EMPIRICAL DETERMINANTS OF SUPERVISORY BOARD REMUNERATION & 3.3 VARIABLES) and already used proxies to prevent MEs. Most proxies were retrieved from annual reports and Datastream. A ME is occurring often if the proxy is not referring to the true value, just giving an approximation. Nevertheless, as mentioned above, Datastream and annual reports can be assessed as a high quality data resource.

The last OLS assumption states that the error terms shall be normally distributed. To deal with non-normality we chose to multiply numerous variables with the natural logarithm. Furthermore due to our sample size, non-normality is not an issue in our regressions. A violation

[6] Strategic Corporate Finance Lecture by Lars Oxelheim on 20th November 2014.

of non-normality would be *'inconsequential'* (Brooks, 2014:164) therefore. Due to the number of observations the *'appropriate distribution'* will therefore be followed anyways.

In Table A 9: Pooled OLS Regression: Correlation Matrix and we present the correlations for our regressions. There is evidence for multi- and near collinearity as explained in 3.3.5 DESCRIPTIVE STATISTICS. This issue was captured by dropping variables, as recommended by Brooks (2014).

Usually a model should also be free of non-linearity concerns. In regards of our sample size and amount of variables used, we agreed upon that a Ramsey RESET test or squaring our figures is not necessary[7].

To comment on the overall fit of the econometric model to the data, the adjusted R squared is used as it controls for additional variables. The outcomes show that we have a really good fit for panel data after controlling for multicollinearity.

Even though we tried to solve for biases through OVs and MEs it is 'unlikely' that all sources of biases are captured, especially in a corporate governance topic. To investigate further on these topics one can introduce Instrumental Variables to deal with endogeneity. This concept would go beyond the scope of this thesis though.

Regarding heterogeneity, as already explained in 3.4. ECONOMETRIC APPROACH, we chose to use fixed effects models to control for heterogeneity issues.

4.4.3 Sensivity Analysis

In line with Oxelheim & Clarkson's (2014) approach, we conduct a **backwards stepwise OLS** estimation regarding the as significant identified variables beforehand. This approach is controversially seen by statisticians since insignificant variables get excluded from the regression, which were identified to be important in the first place[8]. Nevertheless we included the outcomes in Tables A 16-18. Regarding our original fixed effects regression we can see that all the significant variables identified in the first regression are also significant with the same coefficient sign in the backwards approach. In the backwards approach for the fixed compensation we had to exclude *International education* and *Internationals* due to insignificance. In the second approach the coefficients of the variables kept their original sign.

[7] Advice given by Naciye Sekerci on 6th of May 2015.
[8] Advice given by Naciye Sekerci on 6th of May 2015.

The outcome is quite astonishing as it shows that internationality might not have an impact on fixed compensation as concluded before. The backwards approach also shows that variables that were anticipated to be significant for the variable compensation are not significant anymore when excluding insignificant ones. These are *Busy*, *Leverage* and *Crisis*. The insignificance of crisis is interesting to see as it was regarded as an indicator of cronyism in 4.2.2 VARIABLE COMPENSATION. We concluded that cronyism is not present; this gets support by the insignificance of the crisis now.

Regarding our **stepwise forward** approach, we decided to add the control groups Chairman Characteristics, Corporate Governance characteristics and Firm Characteristics one after the other. We decided upon that order due to our assessment of importance. This choice is quite subjective; a different one could have given us different outputs. Nevertheless the order does not change our conclusions, which are always based on the fifth model.

To proxy for a possible cronyism between the chairman and the CEO, we constructed a **tenure dummy** that covers the years of collaboration between the two. In different scenarios we let the dummy take on the value of one if the collaboration has been for at least 3 years or 4 years respectively. The rationale behind that approach is that we anticipate a rising cronyism between the chairman and the CEO the longer they work together and thereby create a bond. This is important especially in the German case since boards are staggered, meaning that unlike in other countries, board members and chairmen are not (re)elected each year. A long-term relationship between the two institutions is therefore more likely than in other countries. Nevertheless, since the dummy turned out to be insignificant no matter which boundary was chosen we decided to exclude it and keep the original variables *CEO tenure* and *Chairman tenure*. The insignificance can be an indication of the absence of cronyism though. Another approach to capture the bonding between the CEO and the chairman would be to investigate upon their common backgrounds. For example one could investigate if they attended the same university, have the same heritage, are members of the same sports clubs etc. Based on that subjective judgment a dummy could be used signifying a significant bond. Since this approach would take a lot of effort and is in the end still based on subjective judgments we decided to rely on hard, comparable data. Nevertheless this approach could be an interesting topic for future research.

5 Conclusion

The **research question** of this Master Thesis is concerned with the identification of the determinants of chairmen compensation in the German large cap market. We aimed to investigate if compensation is influenced by cronyism between the CEO and the chairman. To start off, we identified variables that we considered to be influential on chairman compensation by orienting on previous work in the field and taking into consideration the particularities of the German market. We created a database including the 30 DAX companies, observed over a nine year time period, totaling in 270 observations. For these we retrieved data on more than 30 variables via scanning through annual reports, Internet research and retrieving data from Thomson Reuters Datastream and Eikon. By running several OLS regression we found out that chairman compensation is determined by the independent variable CEO compensation and several controls: the academic background of the chairman, the presence of Anglo-Americans on the board, the board size, the proportion of variable compensation in total compensation, the leverage ratio of the firm and the financial crisis. In our approach we tested upon three hypotheses and found out that they are true:

1. There is a positive relationship between CEO compensation and chairman compensation,
2. There is a positive relationship between fixed CEO compensation and fixed chairman compensation
3. There is a significant impact of the financial crisis on chairman compensation

Regarding our initial suspicion of cronyism between the CEO and the chairman we came to the conclusion that this is most likely not the case in Germany, although we cannot be 100% sure, we find strong prove. This is based on the fact that almost all variables, which we considered to demonstrate cronyism, are insignificant in our regressions. This stands in contrast to the findings for the Swedish market. The diverging outcome can be explained by various differences between the German and the Swedish Corporate Governance Systems. First of all it is up to the shareholders to approve chairman compensation in the end. Although the proposals are rarely rejected there is still the possible force of the shareholders present in the remuneration setting process. Another reason for the absence of cronyism can lie in the German two-tier board structure and the clear separation between the two institutional bodies. Furthermore the fact that 50% of board members are employee representatives can also block possible cronyism in regards to remuneration, because it is against the employee's interest that the chairman

gets over compensated. The employee representatives can be regarded as a very powerful institution therefore. Another reason for the absence of cronyism can lie in the fact that the chairman position is seen as an honorable 'steward' position in Germany. A chairman does not take on this position for monetary reasons but rather to ensure that the company is lead in the right way due to personal entrenchment and an emotional relationship with the firm. Taking this idea one step further, in regards of the chairman being a former management executive, one can imply that he earned a lot in his previous career. Therefore there is no need to rely on a high compensation. In some cases the job can be rather seen as a task that is fulfilled instead of retiring completely.

Regarding **implications for policymakers**, we can conclude that the GCGC seems to have proven to prevent cronyism between the CEOs and chairmen of the DAX30 companies. Nevertheless our outcomes should not be interpreted in a way saying that cronyism is definitely not present between the two institutions. There might be factors indicating cronyism, which we did not include into our research. The tendency to enhance the focus on fixed compensation in Germany might bear the risk of stronger cronyism in the future.

This thesis **contributes** to the current research in the field of corporate governance in various ways. The paper is the first one, according to our knowledge, to touch upon the determinants of German large cap chairman compensation and relates that to cronyism between the chairman and the CEO (Table A7: Matrix: Defining the Research Gap, corner c)). Research on supervisory boards is getting more and more important as the tasks for boards are becoming more complex, the personal responsibilities and the accountability of board members are also rising. Our paper is closing the research gap on cronyism in the German large cap market. It is not really clear though if these outcomes can be transmitted on to other German market segments like Small- and MidCap or the Tec market. To transfer our conclusions one would have to evaluate the explicit governance and ownership structures in these segments first. This could be a topic for future research.

Other ideas for **future research** would be to investigate upon the determinants of chairman compensation in other Germanic shaped systems like Austria, Switzerland, the Netherlands or Poland. Regarding our sample, an approach focused on qualitative research could add further value. One idea would be to conduct interviews directly with chairmen, CEOs and relevant stakeholders. Since there is a trend of increasing number of Anglo-Americans and

Internationals on boards, further research could investigate upon the distinct influence of internationalization and cronyism effects in different legal systems (common vs. civil law).

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Appendix

Table A 7: Matrix: Defining the Research Gap

	NEW FIELD OF RESEARCH	OLD FIELD OF RESEARCH
NEW METHOD	**a) Developing a new model and applying it to new data!** • DAX30 supervisory board remuneration data • New econometric model	**b) Developing a new model!** • Remuneration data of 40 Swedish large caps • New econometric model
OLD METHOD	**c) Applying new data to an already tested framework!** • DAX30 supervisory board remuneration data • Successful applied model of Oxelheim & Clarkson (2014)	**d) No empirical contribution!** • Remuneration data of 40 Swedish large caps • Same applied model as Oxelheim & Clarkson (2014)

**Following Lars Oxelheim (2015)*

Table A 8: DAX30 Companies

Dax 30 Companies (April 2015)		
Adidas	Deutsche Börse	Lanxess
Allianz	Deutsche Post	Linde
BASF	Deutsche Telekom	Lufthansa
Bayer	E.ON	Merck
Beiersdorf	Fresenius	Münchener Rück
BMW	Fresenius Medical Care	RWE
Commerzbank	Heidelberg Cement	SAP
Continental	Henkel	Siemens
Daimler	Infineon	ThyssenKrupp
Deutsche Bank	K+S	Volkswagen

Table A 9: Pooled OLS Regression: Correlation Matrix

	Chairman Compensation	CEO Compensation	Academic	Additional directorships	Age	External director with industry experience	Founder	Gender	International education	International experience	Previous executive	Substantial equity ownership	Tenure	Anglo American	Board compensation	Board size	Busy	CEO tenure	Financial industry knowledge	Internationals	No major shareholder	Major shareholder 5-25%	Major shareholder 25-50%	Variable compensation quotient	Employees	Investment activites	Leverage	Risk	Sales	Size	Tangible Assets	Tobin's q	Crisis
Chairman Compensation	1,00																															
CEO Compensation	0,45	1,00																														
Academic	0,04	0,13	1,00																													
Additional directorships	0,13	-0,13	-0,04	1,00																												
Age	0,11	0,03	-0,10	0,03	1,00																											
External director with industry experience	-0,04	0,10	0,12	-0,06	-0,08	1,00																										
Founder	-0,07	0,03	-0,05	-0,31	0,05	-0,26	1,00																									
Gender	-0,07	0,03	0,08	0,04	-0,24	-0,09	0,34	1,00																								
International education	0,01	0,00	-0,28	0,18	-0,14	0,13	-0,30	-0,10	1,00																							
International experience	0,00	-0,01	-0,01	0,11	-0,02	0,08	-0,21	-0,10	-0,08	1,00																						
Previous executive	0,19	-0,05	0,01	0,26	0,07	-0,52	-0,43	-0,14	0,09	-0,03	1,00																					
Substantial equity ownership	0,11	0,20	-0,24	-0,24	-0,11	-0,17	0,33	0,51	0,07	-0,20	-0,04	1,00																				
Tenure	0,10	0,08	-0,05	-0,14	0,30	-0,02	0,27	-0,08	-0,05	-0,20	-0,12	0,07	1,00																			
Anglo American	0,04	0,01	0,10	0,21	-0,17	-0,06	-0,13	-0,13	0,02	0,21	0,36	-0,26	-0,10	1,00																		
Board compensation	0,70	0,43	-0,04	0,06	0,14	-0,10	0,09	-0,07	0,02	-0,13	0,14	0,19	0,14	-0,01	1,00																	
Board size	0,28	0,17	0,01	0,03	-0,12	-0,01	-0,33	0,03	-0,05	0,04	0,39	0,11	-0,25	0,10	0,11	1,00																
Busy	0,12	0,04	0,14	0,02	0,14	0,01	-0,06	-0,31	-0,11	-0,14	0,12	-0,20	0,00	0,11	0,14	0,13	1,00															
CEO tenure	-0,03	0,00	0,05	0,07	0,12	-0,01	0,09	-0,03	-0,12	0,14	-0,12	-0,04	0,23	0,05	-0,02	-0,36	-0,15	1,00														
Financial industry knowledge	0,08	0,14	0,11	0,08	0,03	-0,09	0,01	-0,09	-0,10	0,02	0,09	-0,14	0,00	0,13	-0,04	0,17	0,08	0,10	1,00													
Internationals	-0,09	0,14	0,10	-0,08	0,00	-0,17	0,24	-0,06	0,03	0,10	0,08	-0,12	0,14	0,51	0,01	-0,39	0,00	0,25	0,22	1,00												
No major shareholder	-0,01	0,08	0,00	0,09	-0,04	-0,05	-0,14	-0,05	0,09	-0,11	0,03	-0,10	-0,02	0,00	-0,03	-0,26	-0,03	0,13	0,03	0,17	1,00											
Major shareholder 5-25%	0,16	0,08	0,09	-0,06	0,24	-0,11	-0,15	-0,17	-0,12	0,25	0,16	-0,17	0,00	0,04	0,13	0,16	0,06	-0,01	0,08	-0,15	-0,32	1,00										
Major shareholder 25-50%	-0,21	-0,21	0,03	0,13	-0,14	0,09	0,05	-0,07	0,02	-0,04	-0,10	-0,07	0,13	0,16	-0,19	-0,02	0,01	0,05	0,12	0,12	-0,15	-0,53	1,00									
Variable compensation quotient	0,32	0,08	0,01	-0,18	0,06	0,00	0,14	-0,02	0,01	-0,29	-0,02	0,30	0,09	-0,37	0,30	0,05	0,02	-0,09	-0,15	-0,29	-0,01	-0,09	-0,21	1,00								
Employees	0,27	0,33	0,08	0,08	0,01	0,06	-0,01	-0,07	0,13	-0,08	0,10	0,12	0,11	0,21	0,22	0,28	0,15	-0,05	0,16	0,09	-0,07	-0,08	0,34	0,05	1,00							
Investment activites	0,00	-0,11	-0,04	0,08	0,07	-0,04	-0,12	-0,09	-0,04	0,07	-0,03	-0,10	0,08	-0,07	-0,02	0,00	0,00	-0,13	-0,29	-0,34	-0,08	0,22	-0,01	0,11	0,08	1,00						
Leverage	0,09	0,06	0,01	0,10	0,17	-0,05	0,07	-0,06	-0,29	-0,03	0,03	0,04	0,23	0,13	0,10	0,10	0,14	0,06	-0,02	-0,07	-0,17	-0,02	0,26	0,07	0,39	0,25	1,00					
Risk	-0,27	-0,22	-0,11	-0,13	0,03	0,04	-0,13	-0,02	0,09	-0,02	-0,13	-0,02	-0,16	-0,19	-0,26	-0,10	0,04	-0,16	-0,27	-0,27	0,06	0,02	-0,09	-0,03	-0,25	0,27	-0,20	1,00				
Sales	0,49	0,43	0,03	0,13	0,00	-0,02	-0,12	-0,07	0,03	0,03	0,27	0,09	-0,05	0,19	0,41	0,46	0,14	-0,10	0,14	0,03	-0,05	0,06	0,07	0,08	0,82	-0,01	0,28	-0,38	1,00			
Size	0,38	0,33	0,03	0,14	-0,17	-0,05	-0,19	-0,10	-0,02	0,03	0,42	-0,03	-0,17	0,39	0,34	0,48	0,17	-0,08	0,29	0,22	0,05	-0,01	0,01	-0,13	0,37	-0,37	0,15	-0,47	0,67	1,00		
Tangible Assets	0,10	-0,04	-0,06	0,15	0,22	0,10	-0,09	-0,09	-0,13	0,19	-0,09	-0,11	0,16	-0,05	0,03	0,06	0,02	-0,04	-0,25	-0,40	-0,17	0,23	0,01	0,10	0,08	0,71	0,23	0,28	0,04	-0,41	1,00	
Tobin's q	-0,01	-0,01	0,07	-0,36	-0,07	0,20	0,22	0,10	0,11	-0,15	-0,34	0,17	0,04	-0,17	-0,01	-0,18	-0,01	-0,12	-0,12	-0,04	-0,09	0,11	-0,18	0,17	-0,08	-0,07	-0,33	0,10	-0,24	-0,41	-0,15	1,00
Crisis	-0,09	-0,10	0,12	0,03	0,00	-0,07	0,00	0,02	0,00	-0,07	0,07	0,01	-0,08	-0,01	-0,09	0,02	0,03	-0,04	0,09	0,00	-0,03	-0,09	0,08	0,01	0,00	-0,08	0,03	0,00	-0,01	0,01	-0,04	-0,13

Table A 10 : Fixed Effects OLS Regression: Correlation Matrix

	Chairman Compensati	CEO Compensation	Academic	Additional directorship	Age	Gender	International education	International experienc	Previous executive	Substantial equity ownership	Tenure	Anglo American	Board compensation	Board size	Busy	CEO tenure	Financial industry knowledge	Internationals	No major shareholder	Major shareholder 5-25%	Major shareholder 25-50%	Variable compensation quotient	Employees	Investment activites	Leverage	Risk	Sales (ln)	Size (ln)	Tangible Assets	Tobin's q	Crisis
Chairman Compensation	1,00																													
CEO Compensation	0,39	1,00																												
Academic	0,10	0,00	1,00																											
Additional directorships	0,16	-0,04	-0,03	1,00																										
Age	0,06	0,11	-0,10	0,04	1,00																									
Gender	-0,03	-0,01	0,08	0,04	-0,24	1,00																								
International education	-0,04	0,14	-0,28	0,17	-0,14	-0,10	1,00																							
International experience	0,23	0,08	-0,01	0,10	-0,02	-0,10	-0,09	1,00																						
Previous executive	0,10	-0,10	0,01	0,25	0,07	-0,15	0,08	-0,04	1,00																					
Substantial equity ownership	-0,27	-0,02	-0,24	-0,25	-0,11	0,51	0,07	-0,20	-0,04	1,00																				
Tenure	0,00	0,03	-0,05	-0,15	0,30	-0,08	-0,05	-0,20	-0,13	0,07	1,00																			
Anglo American	0,32	0,01	0,10	0,20	-0,17	-0,13	0,02	0,20	0,35	-0,27	-0,10	1,00																		
Board compensation	-0,08	0,04	-0,14	0,03	0,08	-0,03	0,11	-0,06	0,09	0,25	0,06	-0,06	1,00																	
Board size	0,15	0,22	0,01	0,03	-0,12	0,03	-0,05	0,04	0,39	0,10	-0,25	0,10	0,07	1,00																
Busy	0,06	0,02	0,14	0,03	0,14	-0,31	-0,11	-0,14	0,12	-0,20	0,00	0,12	0,06	0,13	1,00															
CEO tenure	0,06	-0,06	0,05	0,08	0,12	-0,03	-0,12	0,14	-0,12	-0,04	0,23	0,05	-0,06	-0,36	-0,15	1,00														
Financial industry knowledge	0,22	0,19	0,12	0,06	0,04	-0,09	-0,11	0,02	0,08	-0,14	-0,01	0,13	-0,11	0,17	0,08	0,10	1,00													
Internationals	0,20	0,07	0,10	-0,06	0,00	-0,06	0,04	0,10	0,08	-0,12	0,15	0,51	-0,05	-0,39	0,00	0,25	0,23	1,00												
No major shareholder	0,00	0,06	0,00	0,08	-0,04	-0,05	0,09	-0,11	0,03	-0,10	-0,02	0,00	-0,03	-0,26	-0,03	0,13	0,03	0,17	1,00											
Major shareholder 5-25%	0,24	0,10	0,09	-0,08	0,24	-0,17	-0,12	0,24	0,16	-0,18	-0,01	0,04	-0,04	0,16	0,06	-0,01	0,08	-0,15	-0,33	1,00										
Major shareholder 25-50%	-0,04	-0,08	0,04	0,13	-0,14	-0,07	0,02	-0,04	-0,10	-0,07	0,13	0,16	0,06	-0,02	0,01	0,05	0,11	0,12	-0,15	-0,53	1,00									
Variable compensation quotient	-0,58	-0,15	0,01	-0,17	0,06	-0,02	0,01	-0,28	-0,02	0,31	0,10	-0,37	0,20	0,05	0,02	-0,10	-0,14	-0,29	-0,01	-0,09	-0,21	1,00								
Employees	0,07	0,32	0,02	0,12	-0,03	-0,10	0,30	0,00	0,16	0,20	0,05	0,28	0,18	0,35	0,15	-0,04	0,19	0,12	-0,11	-0,12	0,30	0,03	1,00							
Investment activites	-0,16	-0,05	-0,04	0,07	0,07	-0,09	-0,04	0,06	-0,04	-0,11	0,08	-0,07	-0,01	0,00	0,00	-0,13	-0,30	-0,34	-0,08	0,22	-0,01	0,11	-0,01	1,00						
Leverage	-0,09	-0,06	0,01	0,10	0,17	-0,06	-0,29	-0,03	0,03	0,04	0,22	0,13	0,11	0,10	0,14	0,06	-0,03	-0,07	-0,17	-0,02	0,26	0,07	0,24	0,25	1,00					
Risk	-0,16	-0,05	-0,12	-0,09	0,02	-0,01	0,10	-0,01	-0,12	-0,02	-0,16	-0,18	-0,08	-0,10	0,04	-0,17	-0,26	-0,29	0,07	0,03	-0,09	-0,05	-0,19	0,28	-0,20	1,00				
Sales (ln)	0,25	0,33	-0,13	0,13	0,02	-0,11	0,14	0,08	0,31	0,21	-0,01	0,23	0,27	0,37	0,15	-0,07	0,10	0,16	-0,01	0,02	-0,04	0,09	0,68	-0,04	0,21	-0,27	1,00			
Size (ln)	0,28	0,00	0,04	0,10	-0,31	-0,07	0,04	-0,03	0,25	-0,06	-0,15	0,31	0,03	0,18	0,14	-0,08	0,20	0,18	0,10	-0,06	-0,07	-0,18	0,03	-0,38	-0,02	-0,26	0,27	1,00		
Tangible Assets	-0,04	0,06	-0,06	0,15	0,23	-0,09	-0,13	0,18	-0,09	-0,11	0,16	-0,05	0,01	0,06	0,02	-0,04	-0,26	-0,40	-0,17	0,22	0,01	0,10	-0,03	0,71	0,23	0,29	0,02	-0,46	1,00	
Tobin's q	-0,08	-0,08	0,07	-0,37	-0,07	0,10	0,11	-0,15	-0,34	0,17	0,04	-0,17	-0,05	-0,18	-0,01	-0,12	-0,12	-0,04	-0,09	0,11	-0,18	0,18	-0,01	-0,07	-0,33	0,10	-0,24	-0,25	-0,15	1,00
Crisis	-0,10	-0,09	0,12	0,02	0,01	0,02	0,00	-0,08	0,07	0,01	-0,08	-0,02	0,03	0,02	0,04	-0,04	0,09	0,01	-0,03	-0,09	0,08	0,02	-0,02	-0,08	0,03	0,01	-0,04	0,01	-0,05	-0,13

Table A 11:Fixed Effects Regression Fixed compensation: Correlation Matrix

	Fixed chairman compensation	Fixed CEO Compensation	Academic	Additional directorships	Age	Gender	International education	International experience	Previous executive	Substantial equity ownership	Tenure	Anglo American	Board compensation	Board size	Busy	CEO tenure	Financial industry knowledge	Internationals	No major shareholder	Major shareholder 5-25%	Major shareholder 25-50%	Variable compensation quotient	Employees	Investment activites	Leverage	Risk	Sales	Size	Tangible Assets	Tobin's q	Crisis
Fixed chairman compensation	1,00																														
Fixed CEO Compensation	0,39	1,00																													
Academic	0,10	0,00	1,00																												
Additional directorships	0,16	-0,04	-0,03	1,00																											
Age	0,06	0,11	-0,10	0,04	1,00																										
Gender	-0,03	-0,01	0,08	0,04	-0,24	1,00																									
International education	-0,04	0,14	-0,28	0,17	-0,14	-0,10	1,00																								
International experience	0,23	0,08	-0,01	0,10	-0,02	-0,10	-0,09	1,00																							
Previous executive	0,10	-0,10	0,01	0,25	0,07	-0,15	0,08	-0,04	1,00																						
Substantial equity ownership	-0,27	-0,02	-0,24	-0,25	-0,11	0,51	0,07	-0,20	-0,04	1,00																					
Tenure	0,00	0,03	-0,05	-0,15	0,30	-0,08	-0,05	-0,20	-0,13	0,07	1,00																				
Anglo American	0,32	0,01	0,10	0,20	-0,17	-0,13	0,02	0,20	0,35	-0,27	-0,10	1,00																			
Board compensation	-0,08	0,04	-0,14	0,03	0,08	-0,03	0,11	-0,06	0,09	0,25	0,06	-0,06	1,00																		
Board size	0,15	0,22	0,01	0,03	-0,12	0,03	-0,05	0,04	0,39	0,10	-0,25	0,10	0,07	1,00																	
Busy	0,06	0,02	0,14	0,03	0,14	-0,31	-0,11	-0,14	0,12	-0,20	0,00	0,12	0,06	0,13	1,00																
CEO tenure	0,06	-0,06	0,05	0,08	0,12	-0,03	-0,12	0,14	-0,12	-0,04	0,23	0,05	-0,06	-0,36	-0,15	1,00															
Financial industry knowledge	0,22	0,19	0,12	0,06	0,04	-0,09	-0,11	0,02	0,08	-0,14	-0,01	0,13	-0,11	0,17	0,08	0,10	1,00														
Internationals	0,20	0,07	0,10	-0,06	0,00	-0,06	0,04	0,10	0,08	-0,12	0,15	0,51	-0,05	-0,39	0,00	0,25	0,23	1,00													
No major shareholder	0,00	0,06	0,00	0,08	-0,04	-0,05	0,09	-0,11	0,03	-0,10	-0,02	0,00	-0,03	-0,26	-0,03	0,13	0,03	0,17	1,00												
Major shareholder 5-25%	0,24	0,10	0,09	-0,08	0,24	-0,17	-0,12	0,24	0,16	-0,18	-0,01	0,04	-0,04	0,16	0,06	-0,01	0,08	-0,15	-0,33	1,00											
Major shareholder 25-50%	-0,04	-0,08	0,04	0,13	-0,14	-0,07	0,02	-0,04	-0,10	-0,07	0,13	0,16	0,06	-0,02	0,01	0,05	0,11	0,12	-0,15	-0,53	1,00										
Variable compensation quotient	-0,58	-0,15	0,01	-0,17	0,06	-0,02	0,01	-0,28	-0,02	0,31	0,10	-0,37	0,20	0,05	0,02	-0,10	-0,14	-0,29	-0,01	-0,09	-0,21	1,00									
Employees	0,07	0,32	0,02	0,12	-0,03	-0,10	0,30	0,00	0,16	0,20	0,05	0,28	0,18	0,35	0,15	-0,04	0,19	0,12	-0,11	-0,12	0,30	0,03	1,00								
Investment activites	-0,16	-0,05	-0,04	0,07	0,07	-0,09	-0,04	0,06	-0,04	-0,11	0,08	-0,07	-0,01	0,00	0,00	-0,13	-0,30	-0,34	-0,08	0,22	-0,01	0,11	-0,01	1,00							
Leverage	-0,09	-0,06	0,01	0,10	0,17	-0,06	-0,29	-0,03	0,03	0,04	0,22	0,13	0,11	0,10	0,14	0,06	-0,03	-0,07	-0,17	-0,02	0,26	0,07	0,24	0,25	1,00						
Risk	-0,16	-0,05	-0,12	-0,09	0,02	-0,01	0,10	-0,01	-0,12	-0,02	-0,16	-0,18	-0,08	-0,10	0,04	-0,17	-0,26	-0,29	0,07	0,03	-0,09	-0,05	-0,19	0,28	-0,20	1,00					
Sales	0,25	0,33	-0,13	0,13	0,02	-0,11	0,14	0,08	0,31	0,21	-0,01	0,23	0,27	0,37	0,15	-0,07	0,10	0,16	-0,01	0,02	-0,04	0,09	0,68	-0,04	0,21	-0,27	1,00				
Size	0,28	0,00	0,04	0,10	-0,31	-0,07	0,04	-0,03	0,25	-0,06	-0,15	0,31	0,03	0,18	0,14	-0,08	0,20	0,18	0,10	-0,06	-0,07	-0,18	0,03	-0,38	-0,02	-0,26	0,27	1,00			
Tangible Assets	-0,04	0,06	-0,06	0,15	0,23	-0,09	-0,13	0,18	-0,09	-0,11	0,16	-0,05	0,01	0,06	0,02	-0,04	-0,26	-0,40	-0,17	0,22	0,01	0,10	-0,03	0,71	0,23	0,29	0,02	-0,46	1,00		
Tobin's q	-0,08	-0,08	0,07	-0,37	-0,07	0,10	0,11	-0,15	-0,34	0,17	0,04	-0,17	-0,05	-0,18	-0,01	-0,12	-0,12	-0,04	-0,09	0,11	-0,18	0,18	-0,01	-0,07	-0,33	0,10	-0,24	-0,25	-0,15	1,00	
Crisis	-0,10	-0,09	0,12	0,02	0,01	0,02	0,00	-0,08	0,07	0,01	-0,08	-0,02	0,03	0,02	0,04	-0,04	0,09	0,01	-0,03	-0,09	0,08	0,02	-0,02	-0,08	0,03	0,01	-0,04	0,01	-0,05	-0,13	1,00

Table A 12 Fixed Effects Regression Variable compensation: Correlation Matrix

	Variable chairman compensation	Variable CEO Compensation	Academic	Additional directorships	Age	Gender	International education	International experience	Previous executive	Substantial equity ownership	Tenure	Anglo American	Board compensation	Board size	Busy	CEO tenure	Financial industry knowledge	Internationals	No major shareholder	Major shareholder 5-25%	Major shareholder 25-50%	Variable compensation quotient	Investment activities	Leverage	Risk	Sales	Size	Tobin's q	Crisis	Employees	Tangible Assets
Variable chairman compensation	1,00																														
Variable CEO compensation	0,15	1,00																													
Academic	0,17	0,10	1,00																												
Additional directorships	-0,12	-0,05	-0,04	1,00																											
Age	0,03	-0,06	-0,11	0,02	1,00																										
Gender	-0,07	0,02	0,08	0,04	-0,24	1,00																									
International education	-0,04	-0,05	-0,26	0,18	-0,13	-0,10	1,00																								
International experience	-0,33	-0,04	-0,01	0,11	-0,02	-0,10	-0,08	1,00																							
Previous executive	0,07	-0,02	0,02	0,26	0,07	-0,15	0,08	-0,04	1,00																						
Substantial equity ownership	0,13	0,07	-0,24	-0,24	-0,11	0,50	0,07	-0,20	-0,04	1,00																					
Tenure	0,09	0,06	-0,05	-0,15	0,30	-0,07	-0,05	-0,19	-0,10	0,08	1,00																				
Anglo American	-0,19	0,07	0,10	0,20	-0,18	-0,13	0,03	0,22	0,39	-0,26	-0,14	1,00																			
Board compensation	0,09	0,06	-0,15	0,03	0,09	-0,03	0,11	-0,06	0,09	0,25	0,07	-0,06	1,00																		
Board size	-0,04	0,08	0,02	0,05	-0,11	0,03	-0,07	0,01	0,38	0,10	-0,20	0,17	0,06	1,00																	
Busy	0,14	-0,03	0,13	0,03	0,13	-0,32	-0,10	-0,15	0,12	-0,21	0,01	0,12	0,06	0,14	1,00																
CEO tenure	-0,06	0,08	0,05	0,07	0,14	-0,03	-0,12	0,15	-0,11	-0,03	0,23	0,03	-0,05	-0,37	-0,14	1,00															
Financial industry knowledge	0,00	0,16	0,10	0,08	0,02	-0,09	-0,09	0,03	0,09	-0,14	-0,01	0,13	-0,10	0,20	0,06	0,11	1,00														
Internationals	-0,09	0,10	0,08	-0,10	-0,03	-0,06	0,08	0,14	0,14	-0,11	0,09	0,50	-0,05	-0,30	-0,02	0,25	0,21	1,00													
No major shareholder	0,08	0,04	0,00	0,09	-0,04	-0,05	0,09	-0,12	0,03	-0,10	-0,01	0,01	-0,03	-0,29	-0,04	0,14	0,03	0,20	1,00												
Major shareholder 5-25%	-0,17	-0,06	0,10	-0,06	0,24	-0,18	-0,13	0,24	0,14	-0,18	0,03	0,07	-0,05	0,12	0,05	0,01	0,09	-0,10	-0,33	1,00											
Major shareholder 25-50%	-0,06	-0,01	0,03	0,12	-0,15	-0,07	0,03	-0,01	-0,06	-0,06	0,07	0,12	0,08	0,09	0,02	0,01	0,12	0,02	-0,14	-0,51	1,00										
Variable compensation quotient	0,73	0,13	0,01	-0,18	0,07	-0,03	0,01	-0,31	-0,04	0,30	0,13	-0,37	0,20	-0,01	0,02	-0,09	-0,14	-0,27	-0,02	-0,12	-0,18	1,00									
Investment activities	0,00	-0,02	-0,04	0,08	0,07	-0,09	-0,04	0,06	-0,04	-0,10	0,09	-0,07	-0,01	0,00	-0,01	-0,13	-0,29	-0,36	-0,08	0,22	-0,01	0,10	1,00								
Leverage	-0,04	0,08	0,00	0,10	0,17	-0,05	-0,29	-0,02	0,05	0,05	0,21	0,11	0,11	0,16	0,14	0,05	-0,03	-0,14	-0,17	0,01	0,23	0,09	0,25	1,00							
Risk	-0,05	-0,33	-0,11	-0,13	0,03	-0,02	0,09	-0,03	-0,14	-0,03	-0,14	-0,18	-0,08	-0,14	0,04	-0,16	-0,27	-0,27	0,06	0,01	-0,07	-0,05	0,26	-0,19	1,00						
Sales	0,00	0,17	-0,14	0,15	0,03	-0,11	0,15	0,07	0,31	0,21	0,01	0,25	0,27	0,35	0,15	-0,06	0,11	0,22	-0,02	0,00	-0,01	0,07	-0,04	0,23	-0,29	1,00					
Size	-0,12	0,07	0,04	0,11	-0,31	-0,07	0,04	-0,03	0,25	-0,06	-0,15	0,32	0,03	0,17	0,14	-0,08	0,21	0,21	0,09	-0,06	-0,05	-0,20	-0,38	-0,01	-0,27	0,27	1,00				
Tobin's q	0,15	0,00	0,06	-0,36	-0,08	0,10	0,12	-0,15	-0,34	0,17	0,04	-0,18	-0,06	-0,20	-0,02	-0,13	-0,12	-0,05	-0,09	0,11	-0,19	0,18	-0,07	-0,34	0,10	-0,24	-0,25	1,00			
Crisis	0,07	-0,11	0,13	0,03	0,00	0,02	-0,01	-0,08	0,06	0,01	-0,07	0,00	0,04	0,00	0,03	-0,03	0,09	0,03	-0,04	-0,10	0,11	0,01	-0,08	0,04	0,00	-0,05	0,01	-0,14	1,00		
Employees	0,00	0,11	0,01	0,13	-0,03	-0,10	0,32	0,00	0,16	0,20	0,05	0,28	0,18	0,37	0,15	-0,04	0,19	0,13	-0,11	-0,12	0,32	0,03	0,00	0,25	-0,19	0,68	0,03	-0,01	-0,01	1,00	
Tangible Assets	-0,05	0,00	-0,05	0,15	0,24	-0,09	-0,14	0,18	-0,10	-0,11	0,17	-0,05	0,01	0,04	0,03	-0,05	-0,25	-0,41	-0,17	0,23	0,02	0,09	0,71	0,24	0,28	0,02	-0,46	-0,15	-0,04	-0,02	1,00

Table A 13: Fixed Effects OLS Regression: Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Probability	Sum	Sum Sq. Dev.	Observations
Chairman Compensation	11,84	11,98	14,12	9,55	0,75095	-0,55992	3,74320	19,26819	0,00007	3.029,94	143,80	256
CEO Compensation	14,24	14,23	15,95	12,71	0,55245	-0,10401	3,16731	0,76014	0,68382	3.645,75	77,83	256
Academic	0,78	1,00	1,00	0,00	0,41684	-1,33329	2,77766	76,37414	0,00000	199,00	44,31	256
Additional directorships	0,93	1,00	1,00	0,00	0,24948	-3,48281	13,12995	1.612,11500	0,00000	239,00	15,87	256
Age	0,71	1,00	1,00	0,00	0,45602	-0,90978	1,82770	49,97423	0,00000	181,00	53,03	256
Gender	0,02	0,00	1,00	0,00	0,15159	6,30005	40,69067	16.846,39000	0,00000	6,00	5,86	256
International education	0,30	0,00	1,00	0,00	0,45950	0,86882	1,75484	48,74440	0,00000	77,00	53,84	256
International experience	0,29	0,00	1,00	0,00	0,45602	0,90978	1,82770	49,97423	0,00000	75,00	53,03	256
Previous executive	0,47	0,00	1,00	0,00	0,50000	0,12525	1,01569	42,66929	0,00000	120,00	63,75	256
Substantial equity ownership	0,09	0,00	1,00	0,00	0,28082	2,95472	9,73038	855,67520	0,00000	22,00	20,11	256
Tenure	5,09	5,00	19,00	1,00	3,25523	1,13560	4,95456	95,77239	0,00000	1.302,00	2.702,11	256
Anglo American	0,43	0,00	1,00	0,00	0,49600	0,28407	1,08070	42,73613	0,00000	110,00	62,73	256
Board compensation	148142,10	117424,30	4574665,00	7500,00	287670,70	14,34	220,76	514.566,70000	0,00000	38 Mio.	21 100 000 Mio.	256
Board size	16,84	20,00	21,00	6,00	3,92066	-0,92487	2,86127	36,70182	0,00000	4.312,00	3.919,75	256
Busy	0,86	1,00	1,00	0,00	0,34422	-2,11487	5,47266	256,04970	0,00000	221,00	30,21	256
CEO tenure	5,03	5,00	16,00	1,00	2,99333	0,65832	3,04449	18,51219	0,00010	1.287,00	2.284,81	256
Financial industry knowledge	0,75	1,00	1,00	0,00	0,43610	-1,13083	2,27878	60,10952	0,00000	191,00	48,50	256
Internationals	0,12	0,09	0,50	0,00	0,12180	1,33465	4,50786	100,25360	0,00000	31,73	3,78	256
No major shareholder	0,09	0,00	1,00	0,00	0,28652	2,86865	9,22915	765,00120	0,00000	23,00	20,93	256
Major shareholder 5-25%	0,56	1,00	1,00	0,00	0,49753	-0,23600	1,05570	42,69976	0,00000	143,00	63,12	256
Major shareholder 25-50%	0,18	0,00	1,00	0,00	0,38791	1,63453	3,67169	118,80450	0,00000	47,00	38,37	256
Variable compensation quotient	0,34	0,29	0,95	0,00	0,32435	0,34846	1,62756	25,27232	0,00000	85,91	26,83	256
Employees	126621,20	82858,50	592586,00	2966,00	128425,70	1,71636	5,34058	184,12680	0,00000	32.415.015,00	4 210 000 Mio.	256
Investment activites	0,04	0,04	0,20	0,00	0,03489	1,60325	7,07403	286,71330	0,00000	10,87	0	256
Leverage	0,24	0,23	0,61	0,00	0,13882	0,23427	2,50774	4,92632	0,08517	62,40	4,91	256
Risk	2,71	1,79	23,75	0,10	3,45619	3,18409	15,72924	2.160,93000	0,00000	693,60	3.046,04	256
Sales	4 150 Mio.	3 010 Mio.	20 200 Mio.	200 Mio.	3 810 Mio.	1,38638	5,31095	138,97190	0,00000	1 060 000 Mio.	37 Mio. (+ 15 E)	256
Size	172 Mio.	419 Mio.	2 190 Mio.	2778908,00	365 Mio.	3,74625	17,75352	2 920 Mio.	0,00000	43 900 Mio.	34 Mio. (+21 E)	256
Tangible Assets	0,21	0,20	0,54	0,00	0,14105	0,16216	2,15330	8,76891	0,01247	54,08	5,07	256
Tobin's q	1,48	1,22	5,56	0,85	0,72346	2,47827	10,21215	816,87990	0,00000	379,73	133,47	256
Crisis	0,45	0,00	1,00	0,00	0,49797	0,22007	1,04843	42,69169	0,00000	114,00	63,23	256
Variable chairman copensation	-0,56	10,96	14,08079	-27,63102	18,13951	-0,81929	1,68636	46,49485	0,00000	-141,94	82918,53	253
Variable CEO compensation	14,34	14,77	16,56086	-32,23619	4,25240	-10,44783	114,65470	136023,50000	0,00000	3627,23	4556,89	253
Fixed chairman compensation	11,85	11,98	14,11747	9,54681	0,75257	-0,59314	3,77390	21,14822	0,00003	2997,17	142,72	253
Fixed CEO compensation	14,25	14,24	15,95072	12,70681	0,54678	-0,13176	3,28139	1,56677	0,45686	3604,19	75,34	253

Table A 14: Redundant Fixed Effects Test (CSU)

Redundant Fixed Effects Tests
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.720011	(29,198)	0.0168
Cross-section Chi-square	57.742509	29	0.0012

Cross-section fixed effects test equation:
Dependent Variable: CHAIRMAN_COMPENSATION
Method: Panel Least Squares
Date: 05/08/15 Time: 09:53
Sample: 2006 2014
Periods included: 9
Cross-sections included: 30
Total panel (unbalanced) observations: 257
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO_COMPENSATION	0.138687	0.061923	2.239676	0.0261
CM_ACADEMIC	0.083030	0.072752	1.141260	0.2550
CM_ADDITIONAL_DIRECTORSH	0.324961	0.110449	2.942174	0.0036
CM_AGE	0.074222	0.066639	1.113790	0.2665
CM_INTERNATIONAL_EDUCATI	0.046174	0.060128	0.767932	0.4433
CM_INTERNATIONAL_EXPERIE	0.122372	0.079296	1.543235	0.1242
CM_SUBSTANTIAL_EQUITY_OW	-0.008710	0.113572	-0.076692	0.9389
CM_TENURE	0.022465	0.011527	1.948959	0.0525
CG_ANGLO_AMERICAN	0.120389	0.088181	1.365257	0.1735
CG_BOARD_COMPENSATION	0.427311	0.091952	4.647083	0.0000
CG_BOARD_SIZE	0.012319	0.008580	1.435759	0.1524
CG_BUSY	-0.021630	0.073404	-0.294675	0.7685
CG_CEO_TENURE	0.007215	0.009491	0.760172	0.4479
CG_FINANCIAL_INDUSTRY_KN	0.127978	0.068150	1.877887	0.0617
CG_INTERNATIONALS	-0.523825	0.298276	-1.756175	0.0804
CG_MAJOR_SH_25_50_	-0.003248	0.114467	-0.028374	0.9774
CG_MAJOR_SH_5_25_	-0.040293	0.064936	-0.620505	0.5355
CG_NO_MAJOR_SH	0.077711	0.086769	0.895604	0.3714
CG_VARIABLE_COMPENSATION	0.355796	0.101515	3.504871	0.0006
FC_EMPLOYEES	-0.146535	0.063672	-2.301405	0.0223
FC_INVESTMENT_ACTIVITIES	0.140951	0.925369	0.152319	0.8791
FC_LEVERAGE	-0.003536	0.265660	-0.013309	0.9894
FC_RISK	0.005752	0.009336	0.616168	0.5384
FC_SALES	0.189840	0.065281	2.908048	0.0040
FC_SIZE	0.052136	0.044503	1.171516	0.2426
FC_TANGIBLE_ASSETS	0.369835	0.338132	1.093757	0.2752
FC_TOBIN_S_Q	0.167153	0.058087	2.877643	0.0044
CRISIS	-0.006533	0.047146	-0.138560	0.8899
CM_GENDER	-0.003162	0.174024	-0.018173	0.9855
C	0.611722	0.822430	0.743799	0.4578

R-squared	0.662631	Mean dependent var	12.42045
Adjusted R-squared	0.619531	S.D. dependent var	0.604906
S.E. of regression	0.373119	Akaike info criterion	0.975498
Sum squared resid	31.60242	Schwarz criterion	1.389787
Log likelihood	-95.35147	Hannan-Quinn criter.	1.142104
F-statistic	15.37426	Durbin-Watson stat	1.917978
Prob(F-statistic)	0.000000		

Table A 15: Hausman Test

Correlated Random Effects - Hausman Test
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	51.596244	28	0.0043

Table A 16: Backwards tested Chairman compensation

Dependent Variable: CHAIRMAN_COMPENSATION
Method: Panel Least Squares
Date: 05/26/15 Time: 10:31
Sample: 2006 2014
Periods included: 9
Cross-sections included: 30
Total panel (unbalanced) observations: 258
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEO_COMPENSATION	0.364262	0.074791	4.870402	0.0000
CM_ACADEMIC	0.185167	0.085329	2.170031	0.0311
CG_ANGLO_AMERICAN	0.188480	0.108557	1.736231	0.0839
CG_BOARD_SIZE	-0.029590	0.017125	-1.727914	0.0854
CG_VARIABLE_COMPENSATION	0.388383	0.130640	2.972924	0.0033
FC_LEVERAGE	-1.220740	0.458671	-2.661473	0.0084
CRISIS	-0.100112	0.054813	-1.826422	0.0691
C	7.348968	1.222090	6.013444	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.635628	Mean dependent var	12.42147
Adjusted R-squared	0.576273	S.D. dependent var	0.603948
S.E. of regression	0.393136	Akaike info criterion	1.102700
Sum squared resid	34.15678	Schwarz criterion	1.612233
Log likelihood	-105.2483	Hannan-Quinn criter.	1.307586
F-statistic	10.70896	Durbin-Watson stat	2.037358
Prob(F-statistic)	0.000000		

Table A 17:Backwards tested Fixed chairman compensation

Dependent Variable: LOGGED_FIXED_CHAIRMAN_CO
Method: Panel Least Squares
Date: 05/26/15 Time: 11:47
Sample: 2006 2014
Periods included: 9
Cross-sections included: 30
Total panel (unbalanced) observations: 259
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGED_FIXED_CEO_COMPEN S	0.337723	0.082032	4.116969	0.0001
CM_ACADEMIC	0.258018	0.084000	3.071631	0.0024
CM_INTERNATIONAL_EDUCAT I	0.065789	0.097149	0.677195	0.4990
CM_TENURE	0.028047	0.011673	2.402672	0.0171
CG_INTERNATIONALS	0.248392	0.632129	0.392946	0.6947
CG_MAJOR_SH_5_25_	-0.164369	0.085285	-1.927289	0.0552
CG_VARIABLE_COMPENSATIO N	-1.526350	0.154200	-9.898487	0.0000
CRISIS	-0.138290	0.057752	-2.394568	0.0175
C	7.302627	1.127852	6.474808	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.719630	Mean dependent var	11.84260
Adjusted R-squared	0.672690	S.D. dependent var	0.749545
S.E. of regression	0.428823	Akaike info criterion	1.279224
Sum squared resid	40.63944	Schwarz criterion	1.801075
Log likelihood	-127.6595	Hannan-Quinn criter.	1.489039
F-statistic	15.33088	Durbin-Watson stat	1.451646
Prob(F-statistic)	0.000000		

Dependent Variable: LOGGED_FIXED_CHAIRMAN_CO
Method: Panel Least Squares
Date: 05/26/15 Time: 11:51
Sample: 2006 2014
Periods included: 9
Cross-sections included: 30
Total panel (unbalanced) observations: 259
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGED_FIXED_CEO_COMP ENS	0.344526	0.078350	4.397243	0.0000
CM_ACADEMIC	0.243191	0.080667	3.014749	0.0029
CM_TENURE	0.028644	0.011634	2.462071	0.0146
CG_MAJOR_SH_5_25_	-0.151786	0.083330	-1.821514	0.0699
CG_VARIABLE_COMPENSATI ON	-1.538410	0.145349	-10.58427	0.0000
CRISIS	-0.133308	0.055489	-2.402443	0.0171
C	7.259217	1.100059	6.598933	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.718954	Mean dependent var	11.84260
Adjusted R-squared	0.674843	S.D. dependent var	0.749545
S.E. of regression	0.427409	Akaike info criterion	1.266188
Sum squared resid	40.73739	Schwarz criterion	1.760573

Log likelihood	-127.9713	Hannan-Quinn criter.	1.464960
F-statistic	16.29896	Durbin-Watson stat	1.452903
Prob(F-statistic)	0.000000		

Table A 18: Backwards tested Variable chairman compensation

Dependent Variable: LOGGED_VARIABLE_CHAIRMAN
Method: Panel Least Squares
Date: 05/26/15 Time: 11:55
Sample: 2006 2014
Periods included: 9
Cross-sections included: 30
Total panel (unbalanced) observations: 263
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CM_ACADEMIC	8.052012	4.210006	1.912589	0.0571
CM_GENDER	-29.93828	9.235323	-3.241714	0.0014
CG_BUSY	3.826066	3.366117	1.136641	0.2569
CG_FINANCIAL_INDUSTRY_KN	8.331966	2.665399	3.125974	0.0020
CG_MAJOR_SH_5_25_	-10.72293	3.272455	-3.276725	0.0012
CG_MAJOR_SH_25_50_	-13.73121	4.608712	-2.979402	0.0032
FC_LEVERAGE	19.40277	15.55392	1.247451	0.2135
FC_TOBIN_S_Q	10.48768	2.884399	3.636001	0.0003
CRISIS	2.858395	1.799277	1.588635	0.1136
C	-28.67422	9.445373	-3.035795	0.0027

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.547490	Mean dependent var	-0.729670
Adjusted R-squared	0.470725	S.D. dependent var	18.17225
S.E. of regression	13.22054	Akaike info criterion	8.137490
Sum squared resid	39151.32	Schwarz criterion	8.667201
Log likelihood	-1031.080	Hannan-Quinn criter.	8.350369
F-statistic	7.132027	Durbin-Watson stat	1.983595
Prob(F-statistic)	0.000000		

Dependent Variable: LOGGED_VARIABLE_CHAIRMAN
Method: Panel Least Squares
Date: 05/26/15 Time: 11:56
Sample: 2006 2014
Periods included: 9
Cross-sections included: 30
Total panel (unbalanced) observations: 263
White diagonal standard errors & covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CM_ACADEMIC	8.805529	4.109434	2.142760	0.0332
CM_GENDER	-30.31704	9.513366	-3.186784	0.0016
CG_FINANCIAL_INDUSTRY_KN	8.951394	2.668858	3.354016	0.0009
CG_MAJOR_SH_5_25_	-12.02811	3.303844	-3.640641	0.0003
CG_MAJOR_SH_25_50_	-14.17729	4.513180	-3.141308	0.0019
FC_TOBIN_S_Q	8.167171	2.554021	3.197770	0.0016
C	-16.20892	6.598334	-2.456517	0.0148

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.534950	Mean dependent var	-0.729670
Adjusted R-squared	0.463246	S.D. dependent var	18.17225
S.E. of regression	13.31362	Akaike info criterion	8.142012
Sum squared resid	40236.31	Schwarz criterion	8.630976
Log likelihood	-1034.675	Hannan-Quinn criter.	8.338515
F-statistic	7.460562	Durbin-Watson stat	1.961318
Prob(F-statistic)	0.000000		