The impact of board diversity in board compositions on firm financial performance of organizations in Germany

Bachelor Thesis

Author: Maximilian Rose (s1293451)
University of Twente
P.O. Box 217, 7500AE Enschede
The Netherland

Abstract:
This study investigates whether specific corporate government practices can have an impact on the overall financial performance of companies in Germany. Data, revealing financial and governance information, are collected via the database Orbis and the annual reports of 39 companies located in Germany for the years 2006 until 2014. The companies are drawn from the top 500 European companies. The mixed linear model has been identified as the method in order to identify whether gender, age or nationality can demonstrate an effect on ROA and / or ROE. Empirical results indicate that only age is demonstrating a positive and significant effect on the ROE whereas gender and nationality do not show any significant results on both ROE and / or ROA. Therefore, this research demonstrates that not all corporate governance practices do have an impact on firm financial performance in Germany.

Supervisors: Peter-Jan Engelen
Rezaul Kabir
Xiaohong Huang
Henry van Beusichem
Samy A.G. Essa
George Iatridis

Keywords:
Corporate Governance, Germany, Board Structures, Board Diversity, Firm Performance, Mixed Linear Model

5th IBA Bachelor Thesis Conference, July 2nd, 2015, Enschede, The Netherlands.

1. INTRODUCTION

In times of the globalization, a lot of change has been identified among business operations, especially in terms of corporate governance practices. Recently in Germany for instance, a new law concerning board diversity in terms of female board members has been composed (Köhler, 2015).

Corporate Governance has been identified as "the system by which companies are directed and controlled" (Cadbury Report, 1992). It deals with the topic of assuring that managers of a firm follow the direction, goals and objectives defined by shareholders (Campbell & Minguez-Vera, 2008; Rose, 2007). Board structures and performances are of great importance concerning the topic of corporate governance. Boards can be described as the regulatory institution within an organization which pursues the decision making right over the firm´s assets, evaluate the companies performance, hiring and firing the CEO or the top management, and ensure an ideal business strategy (Thomsen & Conyon, 2012). Further, boards tend to evolve as a control mechanism when there is a separation of ownership and control (Thomsen & Conyon, 2012). "The effectiveness of the boards of directors as monitors depends on upon various factors, among them the qualifications and experience of board members, their possible involvement in multiple directorships, level of share ownership and the type of remuneration scheme employed"(Campbell & Minguez-Vera, 2008). Boards consist of directors who are in charge of making collective decisions and the board members represent a form of intermediary between the organization´s shareholders and its top management (Thomsen & Conyon, 2012). Board members can be in the form of inside board members, which are known as „executive directors" but also as outside board members known as „non- executive directors" (Adams et al., 2010). Different board structure mechanism can be connected to the organizations performance. Topics such as board independence, board size, duality, board diversity or an employee representation can represent possible success factors for the entire organization (Thomsen & Conyon, 2012). These different structural aspects demonstrate a central question in the field of corporate governance nowadays whether particular structures are more likely to influence the organizations performance. This research examines the effects of board diversity in terms of gender diversity, age, and nationality on firm performance in Germany.

2. LITERATURE REVIEW

Current research demonstrates the importance of board diversity (Rose, 2007) and represents a promising structure in order to increase organizational performance. Due to the fact that the aim of each business is to increase shareholder value, board diversity starts with the shareholders. Shareholders are in charge of electing board members and are therefore seeking for the most appropriate managers for representing the company in their best interest (Tirole, 2001). The aim of board diversity is to increase the quality of board decisions and enhancing the business performance (Thomson & Conyon, 2012; Veen et al., 2008; van der Walt & Ingley, 2003).

Aspects such as ethnicity, gender, nationality, age, experience or education can achieve diversity within boards. In the USA the US Securities and Exchange Commission (SEC) requires companies to provide enhanced disclosures on how they consider diversity in the director nomination process, while in the EU, quotas can be found that specify the percentage of women included in boards (Thomson & Conyon, 2012, Nielsen & Huse, 2010). The idea of creating a more diverse board is due to the fact that diversification enhances a better financial performance, which is enabled by increasing the female presence on corporate boards (Francoeur et al., 2008). Francoeur et al. (2008) further developed an agency- theoretic rational which describes that women would have the ability to contribute fresh perspectives on complex issues, which eventually would diminish informational biases in strategy formulation and problem solving. Dallas (2002) identified that a heterogeneous group would have a greater ability to enhance the quality of a decision-making. Lückerath - Rovers (2013) supports that finding by stating that a "homogenous group of directors does not accurately reflect the society in which it operates, and is both a symptom of weak corporate governance and a missed opportunity." Lückerath - Rovers (2013) further states that the presence of women on boards could increase the overall team performance because a greater range of perspectives would be created and eventually a better decision. Having the possibility of achieving a better decision outcome would lead to an increase in higher business value and firm performance (Burgess & Tharenou, 2002; Singh & Vinnicombe, 2004; Carter et al., 2003; Bilimoria, 2000). Eagley et al. (1995) also identified that women may behave differently in contrast to the behavior of males and this difference enables the opportunity of a more effective performance outcome upon particular tasks, in terms of leadership as an enabler of board processes, dynamics, and task performance. A better understanding of business conditions might also reduce the problem of the so- called „Groupthink" by which alternatives tend to be missed (Thomson & Conyon, 2012). Another success factor of a diverse board can be explained by the fact that female board members would deliver valuable inputs to board meetings, have a greater attendance rate (Francoeur, 2008) than male board members and female board members are more likely to join monitoring committees (Adams & Ferreira, 2009). Terjesen and Singh (2008) state that gender diversity in management could provide benefits, such as the inclusion of new ideas, an improved communication process, insights on female market segmentation and transformational management style. Adler (1997) says that leaders need the ability to work interactively and sensitively with leaders from other cultures and that both women and men need to be included in the talent pool. Bear et al. (2010) have investigated on the topic of firm reputation, which is closely linked to overall firm performance. They found from previous research that institutional investors consider corporate governance when making investments. In fact, 12-14% of investors are found to pay a premium on investment for well-governed companies. They consider board diversity in terms of gender as a mechanism to create a well-governed organization, which eventually increase firm performance. If diversity within a company and its management reflects the diversity within a market, an organization has greater chances to act and stay in that market (Carter et al., 2003; Pfeffer & Salancik, 1978; Donaldson & Davis, 1991).

In addition to that, nationality diversity also describes the practice of corporate governance mechanisms. Due to the globalization and a more and more connected world, country differences can have major impacts on the decision-making process of managers. Veen et al. (2008) identified country differences as having major impacts on the micro, the meso, and the macro level and concluded that boards should consist of a group of managers demonstrating different national backgrounds in order to stay competitive. Perlmutter (1969) further made the suggestion for firms to move from an ethnocentric to a more geocentric perspective.

Based on the previous research, the following research question will be addressed: *"Do corporate governance board composition mechanisms, in terms of gender, age, and nationality, improve the overall firm performance of firms in Germany?"*

2.2 Conceptual Framework & Hypotheses

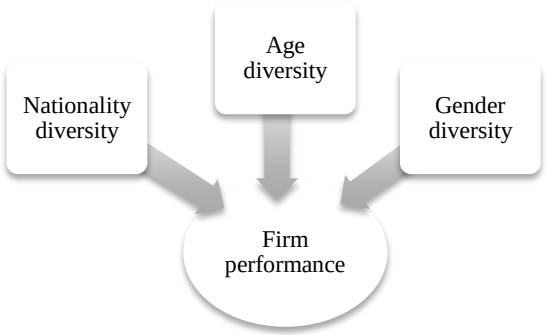


Figure 1: Influence of board diversity on firm performance

Three underlying hypotheses of this research are going to be tested in order to identify whether corporate governance mechanisms have the ability to positively influence firm performance.

- Hypothesis 1: Having both male and female board members on boards have the ability to improve the overall firm performance.
- Hypothesis 2: Having a relatively higher average age of board members enables a more experienced board and eventually increase firm performance.
- Hypothesis 3: Having more nationalities on one-board enables the viewpoint of several business practices and issues and hence improves the overall firm performance.

2.3 Theoretical perspectives

Reasonable theoretical arguments are drawn from the resource dependence theory, the human capital theory, and the agency theory.

2.3.1 Resource dependency theory

Siciliano (1996) argues that well- structured governance boards demonstrate the possibility to positively influence organizational outcomes. Siciliano (1996) supports that assumption on the basis of the resource dependence theory and that board members act as an internal control function. Board members are part of the organization and the environment and therefore have the possibility to enhance the organizational performance by providing resources in terms of knowledge or experience to the company. According to Worthy and Neuschel (1984) there is an increase in demand for people who can contribute to the organization by providing new insights and perspectives.

2.3.2 Human capital theory

The human capital theory has been found to support the assumption that diversity has the potential to demonstrate a benefit to an organization in terms of education, experience, and other skills (Becker, 1964). "Human capital theory predicts that the performance of the board will be affected by board diversity as a result of diverse and unique human capital but the effect could be either positive or negative from a financial performance perspective" (Carter et al., 2010). Concerning to Shrader, Blackburn and Iles (1997), the human capital theory also offers the possibility through gender diversity to facilitate team problem solving in an efficient way. It can be said that the human capital theory goes hand in hand with the resource dependence theory.

2.3.3 Agency theory

The agency theory has also been found to support the conceptual framework due to the fact that boards are in charge of monitoring and controlling the executive managers. The agency theory seeks to analyze a relationship between board characteristics and firm value (Carter, Simkins, & Simpson, 2003). It has been argued that diversity can enhance the quality of monitoring because diversity would create the possibility to increase board independence (Carter, Simkins, and Simpson, 2003). Jensen and Meckling (1967) identified that the agency theory includes two individuals acting upon each other. The principal selects an agent who should act on the principals´ best interest. This situation can eventually cause particular differences in interests of both the agent and the principal.

2.4 Empirical evidence from previous literature

The empirical outcomes of previous research result in a mixed outcome summary (Simson, Carter, & D´Souza, 2010). There are empirical outcomes, which reveal positive impacts, negative impacts but also outcomes with no impacts

concerning the influence of corporate governance practices towards financial performance.

2.4.1 Positive impacts of board diversity on firm financial performance

Several research studies reveal the fact that there is a positive relationship between board member characteristics and financial measures of organizational performance (Siciliano, 1996), especially in terms of gender composition in boards (Babchuk et. al, 1960; Provan, 1980). Bear, Rahman, & Post (2010) found evidence that female board members demonstrate a positive impact but with regards to the firm reputation. Firm reputation however can result in increasing firm performance eventually. Also the research done by Lückerath- Rovers (2013), Carter et al. (2010), and Erhardt at al. (2003) reveals the fact that there is a positive impact on board diversity upon firm financial performance.

2.4.2 Negative impacts of board diversity on firm financial performance

Next to the positive effects that board diversity can achieve upon firm financial performance, some previous literatures reveal a negative outcome of their research. Kochan et al. (2003) found evidence that there is a negative effect of board diversity on business performance. Adams and Ferreira (2009) also found evidence in their research that board diversity can turn out in demonstrating a negative effect.

2.4.3 No impact of board diversity on firm financial performance

Besides the either positive or negative effects, Campbell and Minguez – Vera (2008) conducted a research on the aspect of gender diversity and identified that gender diversity on boards does not have a direct impact on firm financial performance.

2.5 Corporate governance system in Germany

The German corporate governance system distinguishes itself from corporate governance systems such as in the United Kingdom or the United States. Therefore, the following characteristics describe the German corporate governance system. All characteristics are drawn from the particular code of law, mainly the "Aktiengesetz" since listed companies are of interest in this study.

In Germany several types of companies can be found. The most common forms are the "Aktiengesellschaft" (AG) and the "Gesellschaft mit beschränkter Haftung" (GmbH), which are governed by different laws, namely the "Aktiengesetz" and the "GmbH-Gesetz". Companies in Germany that are listed on the stock market have to follow the structure of a two-tier structure, which is a specific characteristic of listed companies in Germany. This two-tier system simply means that two different boards are elected, namely the management board (Vorstand) and the supervisory board (Aufsichtsrat). Typically about the management board is that it consists of inside directors only and its duties refer to the management of the everyday business operations. It meets on a regularly basis. It consists of more than one person as soon as the company has more than 3 million € in capital stock, according to §76. A board member can be elected for a maximum of five years, as stated under §84. The supervisory board however is responsible for the election, announcement, and supervision of the management board. The supervisory board consists of outside members, shareholders but also of employees from the organization, see § 96. Law forbids members of the management board to also have a seat on the supervisory board and vice versa. The size of the supervisory board refers to the capital stock of the company. According to § 95, an "Aktiengesellschaft" consists of at least 3 members. It consists of 9 members with a capital stock of up to 1, 5 million €, consists of 15 members with a stock capital of 1, 5 million € up to 10 million €, and over 10 million stock capital the supervisory can consist of 21 members.

Another characteristic of companies in Germany is the right of employees to hold a seat in the supervisory board. Companies with a size of 500 up to 2000 employees require having one third of employee representatives on the supervisory board; companies larger than 2000 employees require an employee representation of 50% of the size of the supervisory board. Employee representatives have exactly the same rights as every other member of the supervisory board.

In 2015, the German government has composed a law, which states that companies listed on the German exchange market need to include a women quota of 30% in the supervisory and management board (Köhler, 2015), which can also be found under §96.

3. RESEARCH METHODOLOGY

3.2 Data

3.2.1 Sample

In order to appropriately investigate on the research question, the focus of this research is on companies from Germany found under the top 500 European companies. Out of these 500 companies, 49 German countries have been found and 39 companies have been identified as being appropriate for an analysis. Further, these companies have been identified to be heterogeneous. Different findings for particular industries can demonstrate a starting point for future research and provide the possibility for analyzing this phenomenon in more depth. In addition that, these companies have been identified to consider on both social and financial performance.

Data is collected via Orbis, an online database for financial information on organizations and manually from annual reports of the organizations in order to identify the degree of diversification on boards. The collected data represents the form of secondary data. Furthermore, the data is collected from several time points in order to investigate whether there has been an increase in firm performance or not (Lückerath- Hovers, 2013; Carter et al., 2010; Erhardt et al., 2003). Data from the years 2006 until 2014 is compared. Data is collected for each year. The comparison of different time points enables the researcher to control for potential market changes and increases the probability and correctness of results, as stated by Katz et al. (2000). Engelen et al. (2012) suggests collecting data by using a coding scheme, which indicates the names, the gender, the date of birth and the nationality of the board members. In case that the annual

report did not provide appropriate information on any field, other means, such as Bloomberg Business, different annual reports or digital newspaper reports for instance, have been searched for more information. In some cases no information was found which can be due to the fact that Germany has employee representatives on their boards about whom there is no valuable data in the Internet. Data is also restructured in a way that all extreme points are excluded from this research as it would most likely interrupt the analysis and forge trends and results.

3.3 Method

Issues regarding board diversity in terms of female board members, age, nationality, and financial performance are the main intention of this research.

3.3.1 Variables

The dependent variable of this research is firm performance, in terms of accounting data, such as return on assets (ROA), and return on investment (ROI). These accounting measurements are selected because they have been found in previous research regarding similar topics (Lückerath- Hovers, 2011; Carter et al., 2010, Erhardt et al., 2003, Shrader et al., 1997). ROA measures income and reveals an indication of the achieved accounting income for the shareholders. It is calculated as the net income divided by the book value of total assets (Carter et al., 2010). ROE demonstrates the company's profitability by stating the amount of profit a company achieves with money invested by shareholders. It is calculated by dividing the net income with the shareholder's equity.

The underlying independent variable of this research is characterized by board diversity, in terms of female board members, the age of board members, and the different nationalities of the board members. Gender diversity is measured in an aggregated percentage of women on the boards of organizations. These percentages demonstrate the degree of gender heterogeneity on the particular boards. The coding scheme by Engelen (2012) has been followed, which suggests entering either a 1 for male board members or a 2 for female board members in order to create a distinct overview of the gender situation on boards. Verifying the gender has been done in a way of analyzing the person with regard to the name, visual information, or biographical information. The age of boards is measured by entering the years of birth of each individual board member, if appropriate information is provided. These dates are transformed into average data sets for the given companies in the given years. The purpose of using the average is due to the fact that it enables a more convenient control for potential changes in the diversity, as stated by Erhardt et al. (2003). The nationality diversity is, as the gender diversity, measured as the aggregated percentage of boards. The coding scheme also followed the idea of Engelen (2012) who identified 30 countries with specific number codes for different countries. Countries not listed under the first 29 numbers will be collected with the number 30. Due to the fact that Germany consists of both a supervisory and a management board, results of both boards are combined together, demonstrating results that include results from both the supervisory and the management board.

Firm size and firm age are the control variables of this study. Firm size is measured in form of total number of (internal) employees from the year 2006 and 2014, whereas the firm age equals the year of the founding. Data is also collected and obtained via Orbis.

3.3.2 Regression equation

In order to identify a relationship between the independent and the dependent variables, two regression equations are conducted, based on the assumption of Carter et al. (2010):

Equation (1): *ROA*

$$ROA_x=\alpha_x+ß_{1y}*AGEBOARDS_{xy}+ß_{2y}*GENDERDIVERSITY_{xy}+ß_{3y}*NATIONALITYDIVERSITY_{xy}+\varepsilon_{xy}$$

Equation (2): *ROE*

$$ROE_x=\alpha_x+ß_{1y}*AGEBOARDS_{xy}+ß_{2y}*GENDERDIVERSITY_{xy}+ß_{3y}*NATIONALITYDIVERSITY_{xy}+\varepsilon_{xy}$$

where ROE_x and ROA_x represent the financial measurements in order to test for financial performance for the organization x. $AGEBOARDS_{xy}$ measures the average age of boards, as it takes all board members of one organization into account. $GENERDIVERSITY_{xy}$ is measured as the percentage of women included on boards, also called the gender heterogeneity and $NATIONALITYDIVERSITY_{xy}$ measures the percentage of different nationalities included on boards, also called the nationality heterogeneity. Both of the two equations are used to test the hypotheses 1 to 3. Due to the fact that data is collected for the same companies over the years 2006 until 2014, the regression model demonstrates several measurements for the same focus of observation. A mixed linear model therefore is chosen as the appropriate

	N	Minimum	Maximum	Mean	Std. Deviation
Age Board	325	48.52	64.18	56.398	2.855
Gender heterogeneity	325	.00	.35	.123	.078
Nation. heterogeneity	325	.03	.32	.138	.069
Firm age	325	15.0	347.0	107.246	71.205
Firm size 2006	305	1229.0	520112.0	96438.836	125528.940
Firm size 2014	316	4540.0	592586.0	110763.984	127567.993
Valid N (listwise)	296				

Table 1: Descriptive statistics

regression model.

3.3.3 Research Method

The analysis of this research follows a descriptive analysis, a correlation analysis (Erhardt, 2003) and a mixed linear model. The descriptive analysis is used to analyze the overall picture of the given data and represent for instance the mean of several data sets. The correlation analysis investigates on the relationship between the dependent and the independent variable, whereas the linear mixed model exceeds a normal linear model in enabling an analysis not only considering mean responses but also focusing on covariance, and taking repeated measurements into consideration. This type of method allows for continuous variables, both dependent and independent, and also allows an interface between possible different patterns. The data sets have been divided in order to generate gender heterogeneity, nationality heterogeneity, and the age of boards via the use of SPSS version 22. Knowing the exact percentage of the heterogeneity on boards allows for a more valuable linear mixed model analysis eventually. For all analyses an alpha of .05 is handled.

4. RESULTS

The result section is organized as followed. First, the descriptive statistics, Table 1, is analyzed, followed by a bivariate correlation analysis, Table 2, and eventually the mixed linear model analysis, Table 3 and Table 4.

As a starting point, the descriptive data is presented in order to give a general overview of the data. Table 1 describes the independent variables, such age of the boards, the gender heterogeneity, and the nationality heterogeneity with regard to the mean, the standard deviation, and the minimum and the maximum of the data sets. This research consists of 296 valid cases drawn from 39 German companies.

The mean age of board members is found to be 56 (SD = 2.86), the range of age is 48,52 through 64,18. The mean of the gender heterogeneity is found to be 0,12. In other words, the average percentage of women on boards is 12%. The maximum percentage of women on boards is 35%,

		ROA	ROE	Age Board	Gender Heterog.	Nation. Heterog.	Firm Age	Firm size 2006	Firm size 2014
ROA	Pearson Correlation	1	.680**	.114	-.104	.134	.116**	-.057	-.011
	Sig. (2-tailed)		.000	.055	.080	.024	.051	.349	.848
	N	284	284	284	284	284	284	275	284
ROE	Pearson Correlation	.680**	1	.076	-.122*	.140**	-.004	.037	.051**
	Sig. (2-tailed)	.000		.201	.040	.018	.947	.543	.388
	N	284	284	284	284	284	284	275	284
Age Board	Pearson Correlation	.114	.076	1	-.186**	.015	.020	.047	.050
	Sig. (2-tailed)	.055	.201		.002	.808	.742	.435	.402
	N	284	284	284	284	284	284	275	284
Gender heterogeneity	Pearson Correlation	-.104	-.122*	-.186**	1	.191	.014*	.183**	.031
	Sig. (2-tailed)	.080	.040	.002		.001	.808	.002	.601
	N	284	284	284	284	284	284	275	284
Nation. heterogeneity	Pearson Correlation	.134*	.140*	.015	.191**	1*	-.073*	.147	.098*
	Sig. (2-tailed)	.024	.018	.808	.001		.217	.015	.099
	N	284	284	284	284	284	284	275	284
Firm age	Pearson Correlation	.116	-.004	.020	.014	-.073	1	-.140	-.113
	Sig. (2-tailed)	.051	.947	.742	.808	.217		.020	.057
	N	284	284	284	284	284	284	275	284
Firm size 2006	Pearson Correlation	-.057	.037	.047	.183**	.147	-.140	1	.892
	Sig. (2-tailed)	.349	.543	.435	.002	.015	.020		.000
	N	275	275	275	275	275	275	275	275
Firm size 2014	Pearson Correlation	-.011	.051	.050	.031	.098	-.113	.892	1
	Sig. (2-tailed)	.848	.388	.402	.601	.099	.057	.000	
	N	284	284	284	284	284	284	275	284

Table 2: Correlation Analysis

whereas the minimum percentage of women on boards is 0%. About the nationality heterogeneity can be said, that the mean of different nationalities on boards turns out to be 13,8%. The maximum percentage of nationality heterogeneity on boards is 32%, and only 3% represents the minimum percentage of nationality heterogeneity. The mean firm age is found to be 107 years (SD=71,21) with a minimum firm age of 15 and a maximum firm age of 347. The mean firm size, in terms of (internal) employees, for the year 2006 is 96.438,86 (SD=125.528,94) with a minimum number of employees of 1.229 and a maximum number of 520.112 employees. The year 2014 reveals a mean size of firms equal to 110.763,84 (SD=127.567,99) and a minimum number of employees of 4.540 and a maximum of 592.586.

The next analysis represents the correlation analysis. It is analyzed whether there is a correlation between the variables, ROE and ROA, age of boards, the gender heterogeneity, the nationality heterogeneity, and the control variables in form of firm age and firm size (Table 2). Table 2 demonstrates no significant correlation between the age of board members and the ROA or ROE. However, the analysis demonstrates a significant correlation between the age of the boards and the gender heterogeneity. There is a significant weak negative correlation between the two variables ($r = -0,186$; $p < .05$), meaning that the older the board, the less female board members.

The gender heterogeneity is negatively and significantly correlated with the ROE. There is a weak negative correlation ($r = -0,122$; $p < .05$). That means, according to the correlation analysis, the fewer women on boards the greater the result for the ROE.

The nationality heterogeneity instead reveals for both the ROA ($r = 0,134$; $p < .05$) and the ROE ($r = 0,14$; $p < .05$) a significant positive correlation. That means, the more nationalities are added to boards, the greater the influence on ROE and ROA.

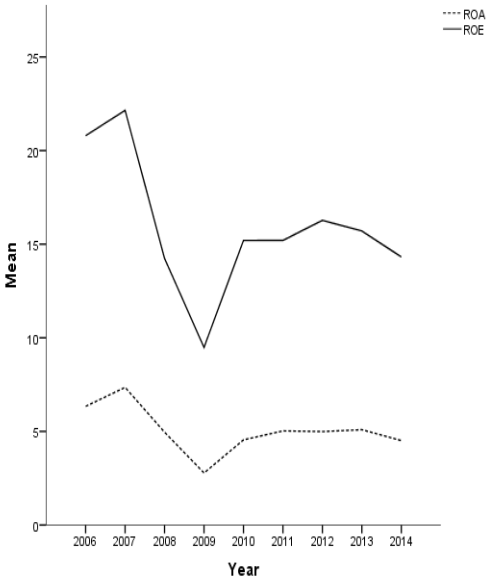
The firm age reveals a negative weak and significant relationship towards the firm size of 2006 ($r = -0,14$; $p < .05$), meaning that the older the firm in 2006 is, the less employees are employed.

The firm size of 2006 positively correlates with the gender heterogeneity ($r=0,183$; $p < .05$) and the nationality heterogeneity ($r = 0,147$; $p < .05$) but is negatively correlated with the firm age ($r = -0,14$; $p < .05$). That means that the bigger the firm size in 2006, more diverse boards in terms of gender diversity and nationality diversity can be found. On the other side, that also means that the smaller the size of the company, the younger the firm in general.

In order to explore whether these correlations have meaningful, supportive and truly significant assumptions, a mixed linear model has been conducted for both dependent variables, ROA and ROE. See Table 3 for the descriptive statistics for both the ROE and the ROA, which is the basis for the mixed linear model. The mean ROA is 4.20 (SD= 4,4) the range of -8 through 17. About the ROE can be said that is

	N	Min	Max	Mean	Std. Dev.
ROA	284	-8	17	4,2	4,444
ROE	278	-13	44	16,03	10,612

Table 3: Descriptive statistics MLM



Graph 1: ROA & ROE over the years 2006-2014

has a mean of 16,03 (SD= 10,61), and a range of -13 through 44.

In order to understand the process of ROE and ROA over the years, see Graph 1. The drop in both ROE and ROA in 2008 can be explained due to the financial crisis in 2008. The ROE is constantly higher than the ROA and both accounting measurement nearly follow the same process over the years 2006 until 2014.

Table 4 and Table 5 demonstrate the outcomes of the mixed linear model as it shows the effects of fixed variables with regard to the ROA and ROE, respectively. The age of board members, the gender heterogeneity, and the nationality heterogeneity have been set as so- called fixed effects as those variables have been identified as the independent variables in this research. These fixed effects are tested towards the ROA and the ROE and demonstrate the estimates, the standard deviation, the degrees of freedom, t, and the significance of the test. Table 4 demonstrates no statistical significance of any independent variables towards the dependent variable, ROA. However, a trend can be observed with regard to the age of the boards, which states a positive relationship between the age of boards and ROA. This trend is only significant if the alpha would have been changed. One can then be 95% confident that a change of 0,14 in the age of boards will affect the firm performance with -0,04 through 0,32. Compared to the correlation analysis, there is no significant relationship of both gender heterogeneity and nationality heterogeneity on ROA. Table 5 instead demonstrates the effect of the independent variables upon the ROE. The Age of boards demonstrates a weak significant relationship towards to the ROE ($p=0,017 < 0,05$). It can be said, that there is a 95% confidence that a change of 0,58 in the age of boards will positively affect the ROE with 0,1 trough 1,06 points. Gender heterogeneity and nationality heterogeneity again demonstrate no statistical significance. Both control variables, firm age and firm size, do also not show any significant results towards both the ROA and ROE.

In order to demonstrate the significance of the age of the boards upon the ROE and ROA, Graph 3 visualizes the course

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-3.174	5.394	189.618	-.588	.557	-13.816	7.467
Age Board	.142	.0921	191.966	1.549	.123	-.038	.324
Gender heterogeneity	-2.401	2.649	137.935	-.906	.366	-7.641	2.838
Nation. heterogeneity	-.212	3.720	139.633	-.057	.955	-7.567	7.142
Firm age	.002	.009	29.211	.224	.824	-.0181	.022
Firm size 2006	-7.140512E-006	1.206926E-005	29.357	-.592	.559	-3.181189E-005	1.753086E-005
Firm size 2014	7.224198E-006	1.158784E-005	29.093	.623	.538	-1.647230E-005	3.092070E-005

Table 4: Results MLM (ROA)

Parameter	Estimate	Std. Error	df	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intercept	-16.836	14.035	162.085	-1.200	.232	-44.552	10.879
Age Board	**.584**	**.243**	**169.405**	**2.404**	**.017**	**.104**	**1.064**
Gender heterogeneity	-4.233	7.359	148.965	-.575	.566	-18.776	10.309
Nation. heterogeneity	.453	9.909	145.882	.046	.964	-19.131	20.037
Firm age	-.007	.0185	25.499	-.420	.678	-.046	.030
Firm size 2006	-9.820932E-006	2.257798E-005	25.844	-.435	.667	-5.624425E-005	3.660238E-005
Firm size 2014	1.991947E-005	2.163007E-005	25.437	.921	.366	-2.458971E-005	6.442864E-005

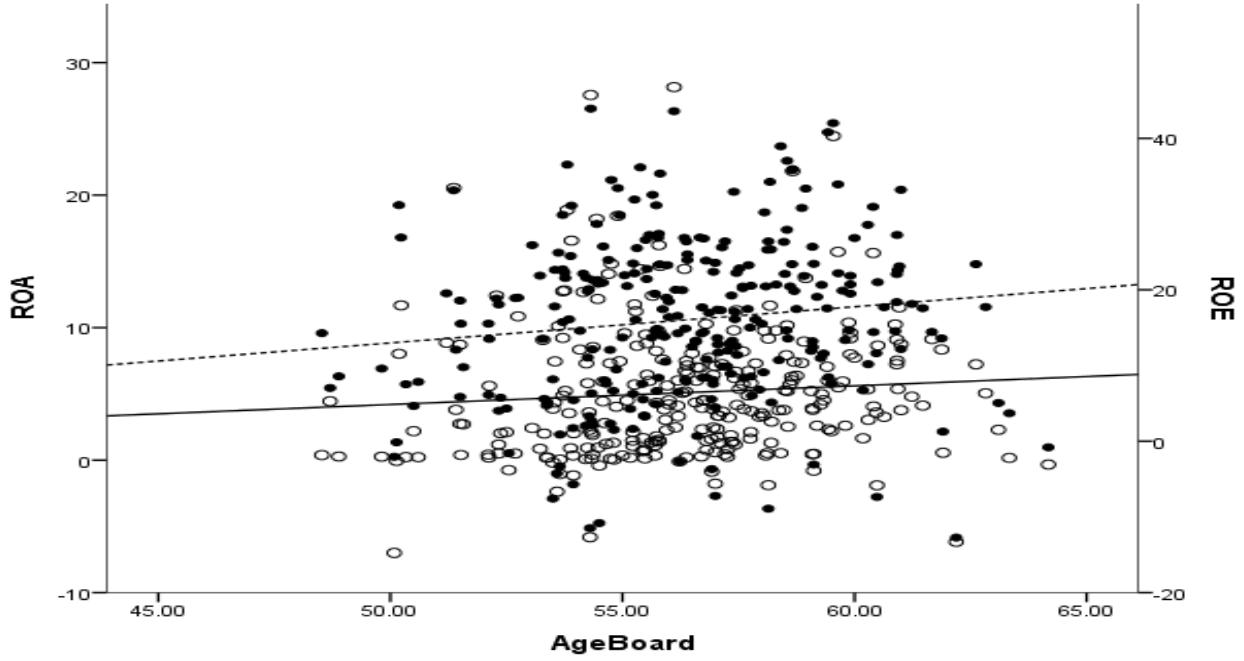
Table 5: Results MLM (ROE)

and direction on both dependent variables. The dotted black line demonstrates ROE, whereas the continuous line represents the ROA. The y-axis represents the ROA, the z-axis represents the ROE and the x-axis shows the effect of the age of the board upon these two variables. The positive direction/ relationship can directly be observed; also the trend upon the ROA can be observed and imagined and has been concluded with the help of the graph.

5. CONCLUSION & DISCUSSION

This research sought to understand and develop a greater understanding of corporate governance mechanisms that demonstrate effects on the overall firm financial performance. As the results show, not every mechanism has an impact on ROA and / or ROE. After having conducted a mixed linear model analysis, only the age of boards is identified as having a weak significant positive relationship towards ROE. All other independent variables do not show any significant relationship towards both ROE and ROA. Therefore, only hypothesis 2 can be partially confirmed, whereas hypothesis 1 and hypothesis 3 both have to be fully rejected. These findings can be supported by the research of Campbell and Minguez Vera (2008) who also did not find a correlation and influence by gender diversity on firm performance. However, the empirical results of this study are in contrast to the empirical work done by Babchuk et al. (1960), Provan (1980), Bear, Rahman, & Post (2010) who all concluded that having a greater number of female board members would increase the overall financial performance of organizations. The main outcome of this research therefore is that older boards can have an impact on achieving greater ROE for companies in Germany. This outcome is very interesting due to the fact of the recent events in Germany. The German government debates intensively the possible positive effects of including female representatives on boards, namely 30%, but the results demonstrate that there is no direct and significant effect of gender diversity on the overall firm financial performance

This research delivers a potential contribution to the practice of corporate governance for companies not only in Germany. First, this research analyzed different corporate governance mechanisms, such as the gender diversification, the age diversification and the nationality diversification. Secondly, this research analyzed the effect of each mechanism with regard to the effect on both ROE and ROA. Third, it demonstrates that not every mechanism is of importance in order to improve the firm performance. Lastly, due to the fact that the supervisory and the management board are combined into one board, the findings of this research enables for a comparison with other countries which follow the one- tier board structure, such as companies in the United Kingdom or in the United States.



Graph 2: Trend ROA & ROE

Limitations of this research can be found in the aggregation of companies from several different industries. For further research it can be of great interest to analyze specific companies from specific industries and therefore getting a more generalizable result for one industry. Different corporate governance mechanisms might be different for different industries. The bank industry might for instance seek for older board members whereas the fashion industry seek for a greater women percentage on their boards, and the pharmacy industry for instance prefer more nationalities on one board. Another limitation can be due to the recent events in Germany. A law about a women quota in Germany has just been set in 2015. It is therefore a very recent topic and companies just started to implement the law concerning the women quota and this research neglects the chance of seeing the direct impact, as there is no financial data yet. Additionally, this research should be extended in a way that more governance mechanisms, such as the education, the specific position or the shares held by board members, are also analyzed. Further, control variables such as the firm leverage, the CAPEX or the sales growth for instance can be included into the data analysis. It might be also of interest to identify the organization climate and culture and identify what the advantages and disadvantages of specific company characteristic are in order to implement a specific corporate governance mechanism. In addition to that it needs to be said that due to the fact that the supervisory board and the management board are combined into one board, for analysis reasons, there is a potential for further research to analyze the supervisory and the management board separately and identify these impacts on financial measurements.

6. ACKNOWLEDGMENTS

I would like to express my greatest gratitude to both dr. Peter-Jan Engelen and prof. dr. Rezaul Kabir for their tremendous support, valuable suggestions and comments during the progress of my thesis. Further, I also would like to thank my family for their supportive attitude and mental support.

7. REFERENCES

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. Journal of Financial Economics, 94, 291-309

Adams, R. B., Hermalin, B. E., & Weisbach, M. S. (2010). The Role of Boards of Directors in Corporate Governance: A conceptual framework and survey. *Journal of Economic Literature*, 48 (1), 58-107

Adler, N. J. (1997). Global Leadership: Women Leaders. *Management International Review*, 37(1), 171-196

Bear, S., Rahman, N., & Post, C. (2010). The Impact of Board Diversity and Gender Composition on Corporate Social Responsibility and Firm Reputation. *Journal of Business Ethics*, 97, 207-221

Becker, G. (1964). Human capital. *University of Chicago Press*.

Bilimoria, D., & Wheeler, J. V. (2000). Women corporate directors: Current research and future directions. Women in Management: Current Research Issues, Vol. 2

Bundesministerium der Justiz & für Verbraucherschutz. Retrieved from: http://www.gesetze-im-internet.de/aktg/index.html

Burgess, Z., & Tharenou, P. (2002). Women board directors: Characteristics of the few. *Journal of Business Ethics*, 37(1), 39-49

Cadbury Report (1992). Report of the Committee on the Financial Aspects of Corporate Governance

Campbell, K., & Minguez- Vera, A. (2008). Gender diversity in the Boardroom and Firm Financial Performance. *Journal of Business Ethics*, 83, 435-451

Carter, D. A., D´Souza, F., Simkins, B. J.M., & Simpson, W. G. (2010.) The Gender and Ethnics Diversity of US Boards and Board Committees and Firm Financial Performance. *Corporate Governance: An International Review*, 18(5), 396-414

Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate Governance, board diversity and firm value. *The Financial Review*, 38, 44-53

Dallas, L. L. (2002). The New Managerialism and Diversity on Corporate Boards of Directors. *Public Law and Legal Theory Working Paper* (38), University of San Diego

Donaldson, L., & Davis, J. H. (1991). Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management*, 16(1), 49-64

Eagley, A. H., Karau, S. J., & Makhijani, M. G. (1995). Gender and the effectiveness of leaders: A meta analysis. *Psychological Bulletin*, 117, 125-145.

Engelen, P. J., van den Berg, A., van der Laan, G. (2012). Board Diversity as a Shield During the Financial Crisis. Corporate Governance.

Erhardt, N. L., Werbel, J. D., Shrader C.B. (2003). Board of Director Diversity and Firm Financial Performance. Blackwell Publishing Ltd., 11(2), 102-111

Francoeur, C., Labelle, R., & Sinclair-Desgagné, B. (2008). Gender Diversity in Corporate Governance and Top Management. *Journal of Business Ethics*, 81, 83-95

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

Katz, J., Zarzeski, M., & Hall, J. (2000). The impact of Strategy, Industry and Culture on Forecasting the Performance of Global Competitors: A Strategic Perspective. Journal of Business Strategies, 17, 119-143

Kochan, T., Bezrukova, E., Jackson, S., Joshi, A., Jehn, K. Leonard, J., Levine, D., Thomas, D. (2003). The effects of diversity on business performance: report of the diversity research network. *Human Resource Management*, 42(1), 3-21

Köhler, M. (2015, March 10). Einmal sind die Banken Vorbild. *Frankfurter Allgemeine Zeitung*. Retrieved from: http://www.faz.net/aktuell/rhein-main/frauenquote-einmal-sind-die-banken-vorbild-13473516.html

Lückerath- Hovers, M. (2013). Women on boards and firm performance. *Journal Management Governance*, 17, 491-509

Nielsen, S., & Huse, M. (2010). The Contribution of Women on Boards of Directors: Going beyond the Surface. Corporate Governance: An International Review, 18(2), 136-148

Perlmutter, H. V. (1969). The tortuous evolution of the multinational revolution, Columbia Journal of World Business, 4(1): 9– 18.

Pfeffer, J., & Salancik, G. R. (1978). The external control of organizations: A resource dependence perspective. *Stanford, CA: Stanford Business Books*

Rose, C. (2007). Does female board representation influence firm performance? The Danish evidence. Corporate Governance: An International Review, 15(2), 404-413

Siciliano, J. I. (1996). The relationship of board member diversity and organizational performance. *Journal of Business Ethics*, 15, 1313-1320

Singh, V., & Vinnicombe, S. (2004). Why so few women directors in top UK boardrooms? Evidence and theoretical explanations. *Corporate Governance*, 12(4), 479-489

Shrader, C., Blackburn, V., & Iles, P. (1997). Women in management and firm value: An explanatory study. *Journal of Managerial Issues*, 9, 355-372

Terjesen, S., & Singh, V. (2008). Female Presence on Corporate Boards: A Multi- Country Study of Environmental Context. *Journal of Business Ethics*, 83, 55-63

Tirole, J. (2001). Corporate Governance. *Econometrica*, 69(1), 1-35

Thomsen, S., & Conyon, M. (2012). *Corporate governance: mechanisms and systems.* McGraw Hill

Van der Van der Walt, N., & Ingley, C. (2003). Board dynamics and the influence of professional background, gender and ethnic diversity of directors. Corporate Governance: An international review, 11(3), 218–234.

Van Veen, K. & Elbertsen, J. (2009). Governance Regimes and Nationality Diversity in Corporate Boards: A Comparative Study of Germany, the Netherlands and the United Kingdom. Corporate Governance, 16 (5), 386-399

Worthy, J. C., & Neuschel, R. P. (1984). Emerging Issues in Corporate Governance. Northeastern University Press, Evanston, IL