Board Diversity and Firm Performance: the Dutch Evidence

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ABSTRACT This paper examines the relationship between board diversity and firm financial performances for a sample of listed Dutch firms during the calendar year of 2013. I examine two dimensions of diversity as independent variables namely, diversity of education and nationality. The dimensions of age and gender diversity are used as control variables. My empirical results show no relation between educational diversity or nationality diversity and firm financial performances. But, I find a positive relation between gender diversity and firm performances during the year of 2013. This can be seen as evidence for the gender diversity quotas imposed by governments.

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1. INTRODUCTION

In today's business entities corporate governance becomes increasingly important. As a shareholder, investor or curious reader, you can't find a table of contents of an annual report without a heading of corporate governance. According to Cadbury (1992) can corporate governance be seen as 'the system by which companies are directed and controlled.' A more specific definition of corporate governance is given by Shleifer and Vishny (1997). They define corporate governance as 'the ways in which suppliers of finance assure themselves of getting a return on their investment'. Those definitions state that corporate governance is about controlling business entities by the suppliers of finance. In the corporate governance sections of the annual reports of business entities readers can, in most cases, find the biography of all the directors or board members of the firm, their salary, former education, nationality, gender and age. What is striking nowadays is that what you find in those sections about the characteristics of the board members is more diverse than ever before. This means that there seems to be a trend of increasing diversity within boards. Board diversity can be accomplished at many dimensions like ethnicity, age, gender, experience, education and background (Thomson and Conyon, 2012). It seems logical that board diversity enhance the decisions made by boards because boards should have greater insights of markets, customers, employees and opportunities by having a more diverse workforce. But does this turns out to be the reality? Because, too many diversity lead towards less insights of markets, customers etc. Aristotle should have said that business entities should search for the golden mean. To receive this golden mean some governments thought or still think they can receive this mean by setting a quota. For example, the governments of Sweden and Norway. Those governments imposed a quota for the diversity of directors of boards based on gender diversity (Medland, 2004). The influence and involvement of national governments increased the curiosity towards the impact of such quota on the performance of firms. This resulted in a lot of research towards the relationship between board diversity and firm financial performance. However, there is no clear answer for this relationship in the literature. For most dimensions like age and gender diversity contradictory answers can be found. For nationality and educational diversity the relationship seems to be in most cases positive but this ascendancy is quite small. Carter, Simkins and Simpson (2003) found a positive relationship between the proportions of minorities and the value of a firm. Marimuthu (2008) found that demographic diversity based on ethnicity positively contributes towards firm financial performances. While Brammer, Millington, and Pavelin (2007) couldn't' identify a significant differences for gender and ethnicity diversity. They used a sample of U.K. corporate boards. Also Finegold, Benson and Hecht (2007) evaluated 105 studies and couldn't identify governance practices that results in more effective firm performances. So, in the literature there is no convincing answer for the relationship between board diversity and firm performance.

This research will contribute to the existing literature through the following research question: *Are the firm financial performances of Dutch listed firms in 2013 significant affected by educational and nationality diversity of boards?*

Sub questions that underpin the main question:

- What are the most commonly used indicators for financial performances?
- What are the most commonly used indicators for board diversity?
- What is the relationship between educational diversity and firm financial performances?
- What is the relationship between nationality diversity and firm financial performances?

Gaining a convincing answer in literature will not be a result of one new study on this subject. Nevertheless, this study focusses on Dutch listed firms in 2013. This will contribute to the existing literature because it focusses on the situation in 2013. In the literature most studies use data from 2012 or earlier so this study of 2013 will provide more recent evidence on this topic of interest. Next, to this more recent data, the study uses other dimensions of diversity than most studies because most research is done towards age and gender diversity. Besides, a lot of research has been executed on those dimension they don't provide a general explanation between age and gender diversity. Finally, Dutch listed firms have in most cases a two-tier board structure which results in a separation of executive and non-executive board members (Maassen, 1999). A two-tier board structure results in a management board with executive directors and a supervisory board with non-executive directors. Therefore, my study can be more precisely measure the impact of board diversity on firm financial performance because of the separation between boards.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Board diversity is related towards corporate governance because corporate governance is a result of the separation of capital providers and capital users (Brennan, 2006). The board of directors is a corporate governance mechanism that should defense the interest of the shareholders against the managers who have contradictory interests (Brennen, 2006). By separating the executive and non-executive directors as in a two-tier board structure the interests of executive managers and non-executive directors are split into two different boards. The non-executive directors form the supervisory board which members are chosen by the shareholder during the annual general meeting (AGM). So, the directors of the supervisory board are representatives of the shareholders. Boards can have different roles but in a two-tier the most common roles are that the management board focusses on the daily management of the firm, while the supervisory board monitors and controls the management board (Brennan, 2006). Based on the fact that a board is an important mechanism for corporate governance it became and still is interesting how the composition of boards can have impact on the performance of business entities. A lot of studies have been executed last decades. Most of these studies attempt to find the relationship between board diversity and firm performances based on age and gender diversity. Carter et al. (2010) spend seven studies on gender diversity which resulted in two positive relationships, two negative relationships and three studies that found no relation between the variables. Bøhren and Strøm (2007) found that: "increasing diversity by larger board size, more gender mix, and more employee directors is always negatively associated with performance." While Ararat, Aksu and Cetin (2010) found for their Turkish sample that: "board diversity increases firm performance and board's monitoring intensity which in turn, also affects firm performances. In the middle of this positive and negative relationship occurs the work of Randøy, Oxelheim and Thomson (2006). They found no relation for their Scandinavian sample. It seems that there is no strong evidence for the relationship between board diversity in general as age and gender diversity in the literature. In case of nationality diversity and educational diversity it seems that the positive relationship between diversity and performance has the upper hand in literature. Foreign directors within boards can enhance firm performances because they have an

international background and expertise of foreign operations or overseas expansion (Carter, Simkins and Simpson, 2003; Dahya and McConnel, 2007; Marimuthu, 2008: Masulis et al., 2010). Instead, the possible disadvantage of foreign directors can have the upper hand which results in misunderstandings and conflicts (Santen and Donker, 2009). The advice of van der Walt and Ingley (2003) for companies is nothing less than "focusing foremost on merit criteria for director selection and, ideally, to comprise qualified individuals reflecting in the mix based on gender and a range of expertise, experience and ethnicity."

Next, to literature based on samples of countries all over the world. Studies have examined the relationship of board diversity and firm performances for the Netherlands. First of all, Marinova et al. (2010) found no evidence for a positive relationship between gender diversity and firm performances in the Netherlands. A positive relationship between diverse knowledge of board members and monitoring and strategy development of boards is found by van Ees, van der Laan and Postma (2008). A more specific study on the behavior of management boards and supervisory boards resulted in no evidence for a relationship between the size of the management board and firm performances while the size of the supervisory board matters. Van Ees, Postma and Sterken (2001) found that a larger supervisory board has a negative impact on performing effectively and therefore the firm performances. This is in line with the work of Yermack (1996). Next, to the board size as a variable they used the number of outsiders as a variable and found that there is a negative relationship between more diversity in boards based on nationality and firm performances. This is not in line with other studies (Hermalin and Weisbach, 1991: Bhagat and Black, 1998; Dalton et al., 1998; Carter, Simkins and Simpson, 2003; Dahya and McConnel, 2007; Marimuthu, 2008; Masulis et al., 2010). At last Engelen et al (2012) found: "a hyperbolic relation between age diversity on firm performance" For the other dimensions of diversity in their study like gender diversity, nationality diversity and education diversity they found that these dimensions have no impact on firm performances. But these results are based on a sample of Dutch listed firms during a financial crisis which may affect their findings.

Concluding the literature it seems that board diversity not always has a relationship with firm performances and if there is a relation between these variables it can be positive or negative or even hyperbolic. This also applies to education diversity and nationality diversity. Nevertheless, I introduce the following hypotheses:

Hypothesis 1: *Firm financial performance of listed Dutch firms is positively impacted by diversity of nationality among board members.*

Hypothesis 2: *Firm financial performance of listed Dutch firms is positively impacted by diversity of education among board members.*

When combining those first two hypotheses, the final hypothesis is as follow:

Hypothesis 3: *Firm financial performance of listed Dutch firms is positively impacted by diversity of education and nationality among board members*.

3. METHOD

To find the relationship between board diversity and firm financial performances this study uses a quantitative method called the multiple variate regression analysis. This will result measuring the linear regression between multiple variables that are present at the same time. So, it measures the relationship between my independent variables and control variables with the dependent variables. But at the same time also the relationships between the independent variables and control variables are measured. To calculate if these regressions are significant for the sample, I will use the two-sample T-test. This method fits my research because the method determines whether the means of two independent groups differ significantly. To do a two-sample T-test, the two populations need to be independent. So, the two variables under investigation can't interact with each other (Babbie, 2013). To find out if variables in my model are interacting with each other I used other quantitative method called cross-sectional regression analysis. This method is commonly used in literature (Van Ees, Postma and Sterken, 2001; Carter, Simkins and Simpson, 2003; Darmadi, 2011). This will result in the linear regressions between two individual variables in my model. These linear regressions are measures based cross-sectional analysis which uses OLS regression which stands for ordinary least squares This method is used by Carter, Simkins and Simpson (2003), Dayha and McConnel (2007), Marimuthu (2008), Darmadi (2010), Masulis et al. (2010) and Ararat, Aksu and Cetin (2010). OLS regression is consistent with univariate regression analysis and can therefore be combined with multiple variate regression analysis as I do in this research. The ordinary least squares correlation results will determine if I have to drop one of the two variables that are strongly interacting with each other. The combination of those methods will result measuring the significance of the relationships between the variables of my research.

Board diversity can be seen as the independent variable and firm financial performance as the dependent variable. Next, to those variables this study also includes control variables. These variables will be explained. The firm financial performances are measured by return on assets (ROA), Tobin's q and buy and hold return during 2013. The diversity of the board in total and per dimension will be measured by the Blau heterogeneity index. Based, on the dimension of diversity I specify my model as follow:

$$PERF = \beta 0 + \beta 1\ BLAUEDUCATION + \beta 2\ BLAUNATIONALITY + \varepsilon$$

In which BLAUEDUCATION and BLAUNATIONALITY are Blau heterogeneity indices for education and nationality in the boardrooms of the business entities.

3.1 Dependent Variables

The dependent variable is the firm financial performances (FFP). In this study three measurements are used, namely return on assets (ROA), Tobin's q and buy and hold return of shares (BHR) within the year of 2013. These methods of measurements are commonly used in previous studies on the same topic by Marimuthu (2008), Adams et al. (2009), Adams and Ferreira 2009), Darmadi (2011) and Engelen et al. (2012). The return on assets can be defined as the percentages of the net income of a firm of the book value of the total assets of the firm so the formula is as follow:

$$Return\ on\ assets\ (ROA) = \frac{Net\ Income}{Total\ Assets}\ x\ 100\%$$

The approximation of the Tobin's q is according to Chung and Pruitt (1994) a more simple method of the Tobin's q, but their study shows that there method is significant reliable. Tobin's q can be defined as 'the ratio of the market value of a firm to the replacement cost of its assets' (Chung and Pruitt, 1994). The formula is as follow:

$$Approximate\ q = \frac{MVE + PS + DEBT}{TA}$$

The last measurement method is the stock performances of a firm during the whole year of 2013 called the buy and hold return (BHR) method. Starting with the old value of a single share at 31-12-2012 (Old) and ending with the new value of a single share at 31-12-2013(New). The formula is as follow:

$$Buy\ and\ Hold\ return = \frac{New - Old}{Old}\ x\ 100\%$$

3.2 Independent Variables

The independent variable is the board diversity of firms. Board diversity can be accomplished at many dimensions as mentioned before according to Thomson and Conyon (2012). In this study two dimensions of board diversity will be investigated of business entities, namely the diversity of education and nationality. Because most Dutch listed entities have a two-tier board structure, I will run a regression analysis separately for the management board and supervisory board of all the firms as well as those boards combined together. So, I will use three categories of boards in my research so I can compare the differences.

By gathering all the characteristics of the board members I gain a list of different educations and nationalities per board and per business entity. This is necessary to measure the Blau heterogeneity indicator (Blau, 1977). This indicator is designed to measure the level of diversity between individual and therefor can be used to measure the diversity within board. The indicator measures the proportion of the board that belongs to a category k (with k = 1…, K). For example the proportion of board members that is a Dutch national with an economics education instead of a British national that has a degree in psychology. But due the fact that the dimensions of diversity do not have the same number of categories the original formula of Blau needs to be improved. The original formula of the Blau indicator for heterogeneity with K categories is:

$$\mathrm{B} = 1 - \sum_{k=1}^{K} \left(\frac{nk}{n}\right)^2$$

In which a board with n members, out whom nk are from category k. The score for the B varies between the 0 and 1. In case of a 0 there are no differences between the board members for a given category.

As mentioned are not all the dimension of diversity the same based on the number of categories. The dimension of nationality consists out of 19 categories while the dimension of education has 9 categories. To make the results of each dimension comparable one needs to improve the original formula of Blau (1977). Engelen et al. (2012) changed the formula in such a way that the formula addresses towards the maximum diversity each variable can reach. So for calculating comparable indicators of diversity between the two dimensions the following formula is needed:

$$B(Improved) = \left(\frac{\min(n,K)}{\min(n,K) - 1}\right)\left(1 - \sum_{k=1}^{K} \left(\frac{nk}{n}\right)^2\right)$$

3.3 Control Variables

The control variables in this study can be seen as other corporate governance variables or diversity dimension that may influence the financial performance of a firm therefor are those variables called control variables. In this study these variables are age and gender diversity, board size, CEO and Chairman Duality (CCD), number of employees of a firm (NoE), and growth of company's sales (GoCs). These control variables will be used to exclude other independent variables which therefor can be called as independent control variables.

First, the variable of gender diversity will be used in the same way as the dimensions of education and nationality based on the Blau indicator which makes a total of three dimensions of diversity that can be compared with each other. Second, age diversity will be measured by the mean and standard deviation of the board members of the companies.

The board size is measured as the total number of directors in the management board and supervisory board of a business entity. Taking into account the board size will display the total amount of possible diversity between members. It seems common sense that a board of ten directors can be more diverse, than a board of only four directors.

Besides, board size also firm size based on the number of employees will be used as a control variable. In most cases people expect or assume that the larger the company, the better the financial performance but this relationship will not always be reality.

CEO and Chairman Duality (CCD) can be defined as the case in which the Chief Executive Officer (CEO) is also the chairman of the Board (Thomson and Conyon, 2012). It might be the case that the CEO is also a member or even the chairman of the supervisory board but this phenomenon seems to be contradictory in comparison with the essential idea of the separation of the executive and non-executive directors. In most cased Dutch supervisory boards only consist of non-executive directors.

Finally, the growth of sales of a company (GoCs) will be comparing the sales of a firm in 2013 with their annual sales in 2012 this will measure how strong the relationship is between the change in sales between 2012 and 2013 and the financial firm performance of the firm in 2013.

The relationships between these independent control variables and the firm's financial performance will be determined by regression analysis's to find out if there are links is between those variables and the performances of firms.

4. DATA

4.1 Data Collection

The collection of data for this study will be based on a sample of 95 Dutch listed companies on the Euronext Amsterdam. The list of the companies included in the sample of this study can be found in Appendix 1. The Euronext Amsterdam is the stock exchange of the Netherlands. I include all the listed companies from the 1st of January 2013 till the end of the year. The Euronext uses three categories based on the size of the companies. Each category includes twenty-five companies, so the categories will include 75 companies instead of the total of the 95 Dutch listed companies. Fortunately, the Euronext also provide all the data about the listed firms that are not part of the 75 biggest listed firms of the Netherlands. This study focusses on Dutch listed firms therefor it seems that companies like for example Mediq N.V. which is taken over in 2013 by Advent International need to be excluded. However, Reed Elsevier N.V. is taken over in 2015 and can therefor still be used for this study. Next, to Mediq N.V. also Unibail-Rodamco, Arcelor Mittal, Air France -KLM and Royal Dutch Shell which are of origin Dutch companies but do not longer are fully Dutch companies because they change their constituent country into France for Unibail-Rodamco and Air France- KLM and the

United Kingdom for Royal Dutch Shell. Therefore, they are no longer under surveillance of the Dutch law.

So, the financial year 2013 is chosen as the period under study. The first sample consisted out of 101 Dutch listed on the Euronext from the 1st of January to the 31th of December 2013. Some firms are excluded out of the sample because they did not have the Netherlands as their constituent country anymore.

The collection of the data was based on the data from annual reports of 2013 of each company. Next the database Orbis, which contains information of companies all around the globe, was a source for information about firm financial performances. If the annual reports and Orbis did not provide the needed information, the website of business entities, social media in the form of LinkedIn or the Internet was used. The collected data for the dependent variable didn't need to be coded. But the data for the independent and control variables are coded after collection so the data is useful. The coding scheme includes 9 categories of education, 19 different nationalities, 4 categories of CEO and Chairman Duality. This coding scheme also provides the less complex coding of the other variables. The coding scheme can be found in Appendix 2.

4.2 Sample Description

The sample of this research consists out of 95 listed companies with their board members. Appendix 3 provides descriptive statistics of the diversity of all the 749 board positions. Appendix 4 and 5 provide descriptive statistics for management board members and supervisory board members. Nine of the 95 companies of the sample are one-tier structured companies and therefore are these boards included in the numbers and results that are specific for management boards. When a person fulfills x board positions, separated over x companies, the characteristics of this person is used x times to calculate the total diversity.

Appendix 3 shows for age diversity that the mean year of birth is 1948,84 and has a standard deviation of 10,76. This results in the fact that the average age of the board members is 64. The age distribution shows that most board members are between the ages of 60-69 (319). Notable are the ages of three board members that are 80 years or older. The oldest board member is born in 1923 which makes this person 90 years old in 2013. Comparing Appendix 4 and 5 with each other, which stand for the descriptive statistics of the management board members and supervisory board members. It seems clear that the board members of supervisory board, with a mean year of birth at 1952.13 instead are older than their colleagues in the management boards with a mean year of birth at 1959.22. Gender diversity in Appendix 3 shows that 86,88% of the board members of Dutch listed firms are males, while only 13,12% are females. Comparing the numbers of the management and supervisory boards with each other (Appendix 4 and 5), I found that especially management boards consist out of males (90,15%) while supervisory board have a 84,37% of males.

Of all the board members it seems that 68,3% is Dutch, while 4,77% is German, 5,03% is British, 6,31% is U.S. citizen and 5,54% is French. It may be remarkable that only 2,19% of the board members is Belgian because it is a neighboring country of the Netherlands and most Belgian citizens are able to speak Dutch. When I look further towards this diversity within management and supervisory boards (Appendix 4 and 5). It seems that the percentages of Dutch members is 64,29% for management boards while supervisory boards consist out of Dutch board members for 71,36% The other nationalities vary about the 1% between both boards, but the category of other nationalities shows 10,42% for management boards and only 6,31% for supervisory boards. So, it seems that management boards consist out of more foreign board members relative to supervisory boards.

The most common educational background are economic studies with 59,98% (Appendix 3). The category of economic studies is followed by studies in the field of engineering 13,41%, law studies 9,76% and natural sciences 7,94%. Comparing management boards and supervisory boards it becomes clear that management board members are more focusing on economic studies (65,94%) and engineering (14,01%) while supervisory board members hold degrees in the field of economics (55,21%), law studies (12,16%), engineering (12,93%) and even social sciences (4,44%) over (1,69%) in management boards. So, Appendix 4 and 5 shows that the diversity is larger for supervisory boards than management boards for the educational backgrounds of the members.

Next to descriptive statistics about the dimensions of diversity for all board members, management board members and supervisory board members. This paragraph provides information about the firm financial performances and firm characteristics of all firms (Appendix 6). The corporate structures of companies in my sample are one-tier (9) and two-tier boards (86). So, Dutch listed firms have in most cases a two-tier board structure. Since 1 January 2013 it is permitted under the DCC (Dutch Civil Code), that companies have a one-tier board structure (management board), consisting out of executive and non-executive board members, which can operate similarly to a one-tier board.

Appendix 6 shows that the average board size is 7,88. So, almost 8 board members. The minimum of board size is 2 which results in case of a two-tier board structure that the management board and supervisory board each have one member. The maximum is 21 board members. The distribution of CEO and chairman duality (Appendix 6) shows that 8 CEO's are just the CEO of the company, while 85 CEO's combine being the CEO of a company with being the chairman of the management board. This is quite common and cannot be seen as "duality" compared to a CEO that is also chairman of the supervisory board which is the case in 2 of the 95 companies. In this last situation, the CEO will have a strong position in the supervisory board and you might call this situation "CEO and Chairman Duality". Normally, should supervisory boards only consist out of non-executive directors. But, as the statistics show it is possible under the Dutch law to combine both functions.

The statistics about the number of employees (NoE) in Appendix 6 show that 3 Dutch listed companies have above the 100.000 employees, while the other categories have 25 (10.0001 - 100.000), 29 (1.001 - 10.000) and 31 (0-1000). In this case the total of these numbers is not equal to 95, because some companies don't display statistics about their numbers of employees.

The last four variables displayed in Appendix 6 are all financial variables of which three of them are dependent variables in this research. First, Growth of companies sales, which is the only control variable of the four, shows that the average growth of sales in 2013 was 3,59% with a minimum of -37,34 and a maximum of 34,39%. Second, the buy and hold return (BHR) shows that the performances of the stock based on stock prices went well in 2013 for most of the firms with an average of 18,97%. But some did it very bad as the minimum of -87,73% shows, while others increased their stock value with 222,22%. The return on assets (ROA) shows a negative mean of -23,55% while the maximum is only 66,11%, the minimum shows an outstanding -1858,8%.The last variable which is the Tobin's *q*

shows a mean of 0.46. Which means that for all the Dutch listed firms their market value only covers 46% of the total replacement costs of their assets. The maximum for the q is 0,97 while the minimum is -0,17 due the a negative shareholders fund of a company.

5. RESULTS

Starting with all the variables in this research it seems that a couple of relationships are expected to be present. Nevertheless, shows the correlation table for all variables of my model and all companies in appendix 9 that not one relationship is highly correlated. This would have resulted in dropping one or more variables out of my regression model. So, let's start with those significant relationships based on the multiple variate regression analysis in combination with the T-test method of my research. Relationships that seem to be quite common in my model are the relationships between the financial control variable growth of companies' sales (GoCs) and the dependent variables return on assets (ROA) and buy and hold return (BHR). Especially, the relationship between GoCs and ROA provides evidence that the sales of a company positively affect the company's turnover and therefore the profit and return on assets of companies. Which means that the larger the growth of companies sales, the better the return of assets for the same period. In all cases is this relationship significant at a 1% level. So, in case of management boards which include the board of one-tier companies (Appendix 10), supervisory boards (Appendix 11) and all boards (Appendix 12) the relationship between GoCs and ROA is positive, highly significant and only small changes can be present at a 1% significance level. This relationship was not only present for three categories of boards but also in each model used in this research. So, does Model 1 in Appendix 10, 11 and 12 serve as a benchmark model in which only the control variables are used. Serve Model 2 and 3 of Appendix 10, 11 and 12 as the test for linear relationship between one of the independent variables of my model and the indicators for firm financial performances (FFP). Model 4 of the just mentioned appendixes serves as the total model under investigation in that this model includes all variables of my research.

The other significant and positive relationship between growth of companies' sales and the dependent variable buy and hold return can also be seen as evidence but this evidence is less strong as the previous one. Because the relationship is significance at a 5% or 10% level. This seems logical by the reality in which investors have confidence in growing business entities based on sales. And due the fact that these companies are growing, investors become more and more interested in that particular business entity. This leads to an increase of the companies buy and hold return.

While the significance level was the same for the relationship between GoCs and ROA in the regression analysis, without the matter which category of boards I used. The significance level was also the same in all four models used during the regression analysis. In case of the relationship between GoCs and BHR the results state that there is no evidence for any significant relationship between those variable when I use all boards together (Appendix 12). Only when I separated the boards into the categories of management boards and supervisory boards I found a significant relationship. For the dataset of the management boards the relationship was significant at a 5% level in Model 1, 2 and 3. While the significance level of 10% was just enough in Model 4 for the management boards (Appendix 10) and all models of the supervisory board dataset (Appendix 11). The different results found between the management boards and supervisory boards will be a result of the addition of one-tier companies to the management boards' dataset. But the number of observations is one point lower for management boards compared to supervisory boards. This seems contradictory because of the addition of one-tier companies. But, I immediately noticed that it was much harder to collect data from one-tier companies and especially management board members of firms. This resulted in a lower number of observations for the management boards instead of the supervisory boards.

Now I will discuss the significance relationships between the not financial control variables or independent variables and dependent variables which will result in answering the hypothesis of my research. Based on the results presented to you in Appendix 10, 11 and 12 it seems clear that there is a positive and significant relationship between gender diversity (GenDiv) and the buy and hold return of firms (BHR). This positive relationship means that a higher level of diversity based on gender within boards will result in better buy and hold returns of firms. In all categories of boards and all used models this relationship is positive and significant at a 1% level. This means that no matter if educational diversity (EduDiv) or nationality diversity (NatDiv) or both independent variables are added to a model, the relationship between GenDiv and BHR stays positive and significant. So, the buy and hold return of companies seems to be affected by the gender diversity within supervisory and management boards of a firm. While the studies of Brammer, Millington, and Pavelin (2007), Finegold, Benson and Hecht (2007), Marinova et al. (2010) and Engelen et al. (2012) did not found any relationship between gender diversity and firm financial performances like the buy and hold return.

Other significant relationships are not found between control variables or independent variables and dependent variables. This means that there is no significant relationship between the independent variables and dependent variables of my research. So, educational diversity and nationality diversity are both not related towards the return on assets, Tobin's q and buy and hold returns of firms for my sample of listed Dutch firms. Nevertheless, it is interesting to mention the direction of the not significant relationships. In case of educational diversity all not significant relations are positive which means that an increase of educational diversity rather will enhance firm financial performances than decrease. The same scenario can be found for the not significant relationships between nationality diversity and Tobin's q or buy and hold return of firms. What seems special is negative connection between nationality diversity and return on assets. So, an increase of nationality diversity will rather decrease the return on assets of firms instead of increasing the firm financial performances as in the case of educational diversity. So educational diversity is not significant related towards nevertheless the results show that the relation between educational diversity and firm financial performances will be rather positive than negative. Figure 1 displays the trend line between educational diversity and firm financial performances in which the data of the ROA, Tobin's q and BHR are combined into one number for firm financial performances of each firm. The trend line indicates a non-linear relation between EduDiv and FFP. The trend line shows that if the diversity increases, the performances also increase till a maximum point. After this point, diversity based on education and the performances decreases. Despite that this relationship is not significant Figure 1 shows a hyperbolic relation in which educational diversity enhances the performances of firms but that too many diversity leads towards a reduction of the firm financial performances. The same relationship is showed in

Figure 2 for nationality diversity on firm financial performances. Despite that this relationship is not significant. Figure 2 displays the trend line which is an even smaller hyperbolic regression between NatDiv and FFP.

Based on the absence of significant relationships between the independent variables and the dependent variables it is quite clear that these findings result in the rejection of hypothesis 1 because there is no impact of nationality diversity on the firm financial performances. The fact that there is no significant relation between NatDiv and firm financial performances is consistent with the findings of Brammer, Millington, and Pavelin (2007), Finegold, Bensen and Hecht (2007) and Engelen et al. (2012). While this is not in line with other studies that found a positive relationships (Hermalin and Weisbach, 1991: Bhagat and Black, 1998; Dalton et al., 1998; Carter, Simkins and Simpson, 2003; Dahya and McConnel, 2007; Marimuthu, 2008; Masulis et al., 2010), or a negative relationship (Marinova et al. 2010) between NatDiv and firm financial performances.

Because of no significant relationship between educational diversity and financial firm performances also hypothesis 2 will be rejected. This corresponds to the work of Finegold, Bensen and Hecht (2007) and Engelen et al. (2012).

The combination of the rejection of hypothesis 1 and hypothesis 2 results in a rejection of hypothesis 3 because the firm financial performances of listed Dutch firms is not impacted by diversity of education or diversity of nationality among board members. Hypothesis 3 is formulated in such a way that the hypothesis cannot be approved if one of the two dimensions of diversity is not positively related towards the firm financial performances. In this case hypothesis 1 and 2 are both rejected which clearly results in the rejection of hypothesis 3.

Figure 1 Non-linear impact of EduDiv on FFP

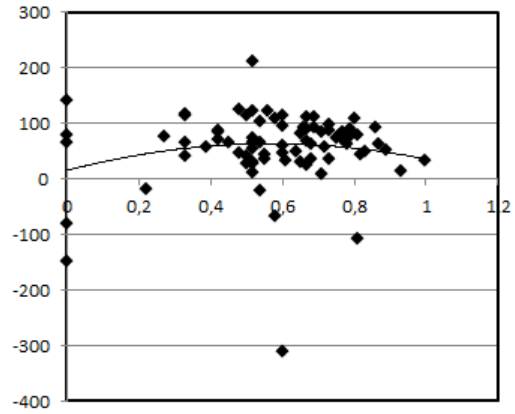
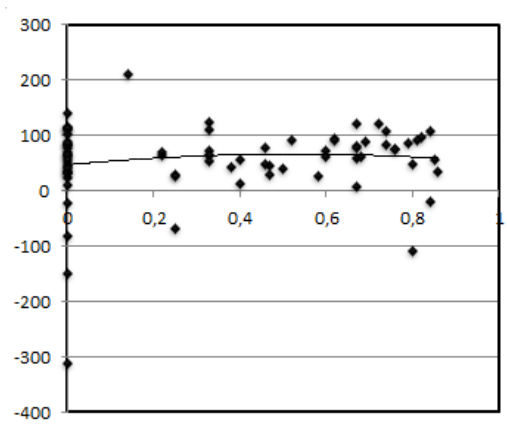


Figure 2 Non-linear impact of NatDiv on FFP



6. CONCLUSIONS

This study examines the relationship between educational and nationality diversity of boards and the firm financial performances in the Netherlands for the year of 2013. A lot of research based on diversity has been examined in the past, but showed mixed results. Only a small part of previous research was focusing on educational and nationality diversity or a Dutch sample. That's why this study contributes to the literature by addressing the issue of educational and nationality diversity. Besides, it also adds evidence towards the literature about the relationship between age and gender diversity and firm financial performances because these variables were used as control variables in this research. Next, this research examines relationships in 2013, which others did not use as their year under investigation. At last the sample consisted out of listed Dutch firms and therefore can be considered as literature or evidence for the situation of firms in the Netherlands.

In this study I use four demographic characteristics of board members. To score the different levels of those four dimensions of diversity I use the Blau heterogeneity index. These four characteristics or dimensions are age, education, gender and nationality. Two of them are independent variables as education and nationality, while age and gender are used as control variables. Numbers of employees, growth of company's sales, CEO and Chairman Duality and board size are included as control variables in the models.By conducting multiple variate regression analysis I found relationships between gender diversity and growth of companies' sales and the dependent variables that were presenting the firm financial performances. The dependent variables in this research are, return on assets, Tobin's *q* and buy and hold return.

For the cross-sectional regression analysis and multiple variate regression analysis I was using a sample of 95 listed Dutch firms on the Euronext Amsterdam as from the 1st of January 2013 till the end of the year.

In this research I find a significant relationship between gender diversity and the buy and hold returns of firms. Based on this its seems that diversity in some way can have a positive impact on the performances of firms but that in most cases this relationship is not significant. Additional research might explain why the linkage between gender diversity and buy and hold return of firms is found as significant. What seems unexpected is that board size has no impact on the firm financial performances. In the correlation table (Appendix 9) board size seems to have relatively high correlations with the return on assets and the Tobin's *q*. Also educational diversity scores relatively high in the correlation table towards return on assets. Nevertheless, are these relationships not significant to a 10% level of significance during the multiple variate regression analysis. These unexpected results will be the result of adding more variables into the model, instead of calculating the correlation between two variables of my model.

The actual relationship under investigation in this study shows that the linkage between dimensions of board diversity and firm financial performances is in most cases not significant. So, both independent variables of this study are not significant related towards any indicator of financial firm performances. While educational and nationality diversity are not significant related towards the performances of companies, Figure 1 and 2 display a hyperbolic trend line for both dimensions of diversity. Therefore, it seems that the golden mean of Aristotle should be the underlying idea of composing boards for educational and nationality diversity. Which companies should try to accomplish in the top level of their business entity. This

underlying idea would become a target for companies if future research finds more evidence for a positive relationship between educational diversity or nationality diversity and firm financial performances.

To receive the golden mean of Aristotle governments thought that setting quotas would help to increase performances of firms by having more gender diversity within boards. As mentioned the governments of Sweden and Norway used this kind of quota (Medland, 2004). But also the Dutch government introduced a policy on gender diversity (Engelen et al., 2012). My results indicate that gender diversity is significant related towards firm financial performances. So, there seems to be evidence for governments to introduce quotas that should enhance gender diversity within boards that help improving the firm financial performances. Of course, quotas enhance the gender diversity of companies. But in most cases will these quotas be applicable for larger boards and not boards that consist out of only two or three members.

This study is subject to some limitations, which further studies and readers have to take into account. First, this study makes use of listed Dutch firms in one financial period, which makes the results not generalizable for other financial periods. Second, the study uses a Dutch sample which might not be generalizable for companies with other origins. Finally, some information could not be obtained for some companies or were not applicable for companies like growth of company's sales for investment companies or banks. This result into a lower number of companies in the used sample and the fact that the results based on growth of companies sales (GoCs) are not generalizable for listed Dutch firms in the investment or financial services industry.

7. ACKNOWLEDGMENTS

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8. REFERENCES

Adams, R.B., Almeide, H., and Ferreira, D. (2009). Understanding the relationship between founder-CEOs and firm performance, *Journal of Empirical Finance, 16* (1), 136-150.

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

Ararat, M., Aksu, M. H., & Tansel Cetin, A. (2010). The Impact of Board Diversity on Boards' Monitoring Intensity and Firm Performance: Evidence from the Istanbul Stock Exchange. *Available at SSRN 1572283*.

Babbie, E.. (2013). *The Practice of Social Research*. Canada: Cengage Learning.

Bhagat, S. and Black, B. (1998) The Uncertain Relationship Between Board Composition and Firm Performance. *New York: Columbia Law School Sloan Project, 291-316.*

Blau, P.M. (1977). Inequality and Heterogeneity - A primitive theory of social structure. United Stated of America: Free Press.

Bøhren, O. and Strøm, R.O. (2007). Aligned, informed and decisive: Characteristics of value-creating boards. *BI, Norwegian School of Management Working Paper*.

Brammer, S., Millington, A., and Pavelin, S. (2007) Gender and ethnic diversity among UK corporate boards. *Corporate Governance: An International Review, 15* (2), 393-403.

Cadbury Commision (1992). *Code of Best Practice: Report of the Committee on the Financial Aspect of Corporate Governance*, Gee and Co.: London.

Carter, D.A., Simkins, B.J. and Simpson. W.G. (2003). Corporate Governance, Board Diversity, and Firm Value. *Financial Review*, 38 (1), 33-53.

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

Chung, K.H. and Pruitt, S.W. (1994). A Simple Approximation of Tobin's q, *Financial management*, 23 (3), 70-74.

Dahya, J. and McConnell, J.J. (2007). Board Composition, Corporate Performance, and the Cadbury Committee Recommendations, *Journal of Financial and Quantitative Analysis*, 42 (3), 535-564.

Dalton, D. R., Daily, C. M., Ellstrand, A. E. and Johnson, J. L. (1998) Meta-analytic reviews of board composition, leadership structure, and financial performance. Strategic Management Journal 19, 269–290.

Darmadi, S. (2011) Board diversity and firm performance: the Indonesian evidence. *Corporate Ownership and Control Journal*, 8.

van Ees, H., van der Laan, G., & Postma, T. J. (2008). Effective board behavior in the Netherlands. *European Management Journal*, *26*(2), 84- 93.

Engelen, P.J., van den Berg,. A., and van der Laan, G. (2012). Board Diversity as a Shield During the Financial Crisis. *Corporate Governance* (pp. 259-285) Springer Berlin Heidelberg.

Finegold, D., Benson, G.S. and Hecht, D. (2007). Corporate Boards and Company Performance: review of research in light of recent reforms, *Corporate Governance: An International Review*, 15 (5), 865-878.

Hermalin, B. and Weisbach, M. (1991) The Effects of Board Composition and Direct Incentives on Firm Performance. *Financial Management, 20*, 101-112.

Maassen, G.F. (1999). *An international comparison of corporate governance models: A study on the formal independence and convergence of one-tier and two-tier corporate boards of directors in the United States of America, the United Kingdom and the Netherlands. Amsterdam*, The Netherlands: Spencer Stuart.

Marimuthu, M. (2008). Ethnic Diversity on Boards of Directors and Its Implications on Firm Financial performance. *The Journal of International Social Research*, 1.

Marinova, J., Plantenga, J., & Remery, C. (2010). Gender diversity and firm performance: Evidence from Dutch and Danish boardrooms. *Tjalling C. Koopmans Institute Discussion Paper Series, 10*(03), 1-28.

Masulis, R.W., Wang, C. and Xie, F. (2010). Globalizing the Boardroom: The Effects of Foreign Directors on Corporate Governance and Firm Performance, *ECGI-Finance Working Paper No. 242.*

Medland, D. (2004), "Small steps for womenkind", *Corporate Board Member Europe*, Winter.

Postma, T. J., van Ees, H., & Sterken, E. (2001). *Board composition and firm performance in the Netherlands*. University of Groningen.

Randoy, T., Oxelheim, L. and Thomson, S. (2006). *A Nordic perspective on corporate board diversity*. Obtained at 11, March, 2015 from http://www.nordicinnovation.org/Global/_Publications/Reports/2006/The%20performance%20effects%20of%20board%20diversity%20in%20Nordic%20Firms.pdf

Santen, B. and Donker, H. (2009). Board Diversity in the perspective of Financial Distress: Empirical evidence from the Netherlands. *Corporate Board: Role, Duties and Composition*, 5 (2).

Shleifer, A. and Vishny, R.W. (1997) A Survey of Corporate Governance, *Journal of Finance, 52* (2), 737-83.

Thomsen, S., & Conyon, M. (2012). *Corporate Governance: Mechanisms and Systems.* Berkshire, United Kingdom: McGraw-Hill.

Van der Walt, N. T., & Ingley, C. (2003). Board dynamics and the influence of professional background, gender and ethnic diversity of directors. *Corporate Governance: An International Review, 11*, 218- 234.

Yermack, D. (1996) Higher market valuation of companies with a small board of directors. Journal of Financial Economics 40, 185–211.

9. APPENDICES

Appendix 1: Sample of Dutch Companies Listed on the Euronext of Amsterdam in 2013.

Aalberts Industries	KasBank
Accell Group	Kendion
Advanced Metallurgical	KPN
Aegon	Lavide Holding N.V.
Ahold	Macintosh Retail Group
Airbus Group	Nedap N.V.
Ajax N.V.	Nedsense Enterprises
AkzoNobel	New Sources Energy
Amsterdam Commodities	Neways
Arcadis	NSI N.V.
ASM International	Novisource
ASML	Nutreco Holding
Ballast Nedam	OCI
Bam Groep	Oranjewoud
Batenburg Techniek N.V.	Ordina
BE Semiconductor Industries	Pharming
Beter Bed	Philips
Bever Holding	PostNL
Binck	Randstad
Boskalis	Royal Reesink
Brill	Reed Elsevier
Brunel International	Robeco N.V.
Corbion N.V.	Rolinco
Corio	RoodMicrotec
Crown van Gelder	Roto Smeets Group
Ctac	SBM
De Porceleyne Fles N.V.	Sligro Food N.V.
Delta Lloyd	SnowWorld
Dico International	Stern Groep N.V.
Doc Data	STMicroelectronic
DPA Group	TMG N.V.
DSM	Ten Cate
Esperite N.V.	TIE Kinetix
Eurocommercial Properties	TKH Group
Exact Holding N.V.	TNT Express N.V.
Fugro	TomTom
Gemalto	Unilever
Grontmij	Unit4
Groothandelsgebouwen	USG People
Heijmans	Value8
Heineken	Van Lanschot
Holland Colours	VastNed N.V.
Hunter Douglas	Vopak
ICT Automatisering	Wegener
Imtech	Wereldhave
ING	Wessanen
Inverko	Wolters Kluwer
Kardan	

Appendix 2: Coding scheme for Board Diversity for Dutch listed firms.

Variable:	Corporate Structure
Description:	One versus two tier structure of the company
Coding:	1 = one tier, if all the company's directors (both executive directors as well as non-executive directors) form one board 2 = two tier, if there is an executive board (all executive directors) and a separate supervisory board (all non-executive directors)

Variable:	First name
Description:	First name of the board member

Variable:	Last name
Description:	Last name of the board member

Variable:	Gender
Coding:	1 = male 2 = female
Variable:	Year of birth
Description:	The calendar year of birth

Variable:	Nationality
Description:	Country of origin of the member
Coding:	0 = Unknown 1 = Dutch 2 = German 3 = British 4 = U.S. 5 = French 6 = Belgian 7 = Italian 8 = Swedish 9 = Norwegian 10 = Finnish 11 = Danish 12 = Swiss 13 = Austrian 14 = Greek 15 = Canadian 16 = Australian 17 = Chinese 18 = Singapore 19 = Others

Variable:	Nationality 2
Description:	Second or dual nationality of the board member
Coding:	See above

Variable:	Field of education 1
Coding:	0 = unknown 1 = Economics, business economics, management, finance 2 = Law school 3 = Engineering and other technical education 4 = Natural sciences (physics, chemistry, biology, astronomy, …) 5 = Medicine 6 = Computer science (IT) 7 = Other social sciences (sociology, psychology, political, history, …) 8 = Other humanities (linguistics, philosophy, religion, …) 9 = Other

Variable:	Field of education 2
Description:	Second education of board member.
Coding:	See above
Variable:	Field of education 3
Description:	Third education of board member.
Coding:	See above

Variable:	Current Position
Description:	Specific function of the board member
Coding:	1 = Chief Executive Officer 2 = Chief Financial Officer 3 = Chief Operations Officer 4 = Chairman of the board of directors 5 = Other

Variable:	CEO/Chairman Duality
Description:	It can be that the CEO of a firm also the Chairman of the Management Board is or even the Chairman or just a normal member of the Supervisory Board.
Coding:	0 = Unknown 1 = No duality, the CEO is not the Chairman of the Management Board, neither Chairman of Supervisory Board nor a member of the Supervisory Board. 2 = Duality, the CEO is the Chairman of the Management Board 3 = Duality, the CEO is the Chairman of the Supervisory Board 4 = Duality, the CEO is a member of the Supervisory Board

Appendix 3: Descriptive Statistics of diversity for all board members.

Age Div		**Gender Diversity**	
Mean	1948,84	*Male*	86,88%
Stdev	10,76	*Female*	13,12%
Min	1923		
Max	1980	**Nationality Diversity**	
		Dutch	68,3%
Distribution		*German*	4,77%
≥ 90	1	*British*	5,03%
80 - 89	2	*U.S.*	6,31%
70 - 79	88	*French*	5,54%
60 - 69	319	*Belgian*	2,19%
50 - 59	236	*Others*	7.85%
40 - 49	107		
< 40 years	7		
EduDiv			
Economics	59,98%	*Computer Science*	0,43%
Law	9,76%	*Social Sciences*	3,22%
Engineering	13,41%	*Humanities*	0,54%
Natural Sc.	7,94%	*Other*	3,97%
Medicine	0,75%		

Notes: Stdev is the standard deviation of the mean age, min refers to the lowest age and max refers to the highest age. Age distribution refers to the number of board members per classification. Percentages might not sum up to 100 % due to rounding.

Appendix 4: Descriptive Statistics of diversity for management board members.

Age Diversity		**NatDiv**	
Mean	1959,22	*Dutch*	64,29%
Stdev	8,17	*German*	5,06%
Min	1923	*British*	5,66%
Max	1980	*U.S.*	5,95%
		French	6,85%
Gender Diversity		*Belgian*	1,79%
Male	90,15%	*Others*	10.42%
Female	9,85%		
EduDiv			
Economics	65,94%	*Computer Sc.*	0,97%
Law	9,76%	*Social Sciences*	1,69%
Engineering	14,01%	*Humanities*	0,48%
Natural Sc.	5,8%	*Other*	3,86%
Medicine	0,48%		

Notes: Stdev is the standard deviation of the mean age, min refers to the lowest age and max refers to the highest age. Percentages might not sum up to 100 % due to rounding.

Appendix 5: Descriptive Statistics of diversity for supervisory board members.

Age Diversity		**NatDiv**	
Mean	1952,13	*Dutch*	71,36%
Stdev	7,82	*German*	4,55%
Min	1938	*British*	4,55%
Max	1978	*U.S.*	6,59%
		French	4,55%
Gender Diversity		*Belgian*	1,79%
Male	84,37%	*Others*	6.31%
Female	15,63%		
EduDiv			
Economics	55,21%	*Computer Science*	0%
Law	12,16%	*Social Sciences*	4,44%
Engineering	12,93%	*Humanities*	0,58%
Natural Sciences	9,65%	*Other*	4,05%
Medicine	0,97%		

Notes: Stdev is the standard deviation of the mean age, min refers to the lowest age and max refers to the highest age. Percentages might not sum up to 100 % due to rounding.

Appendix 6: Descriptive Statistics of the companies

BHR		**ROA**	
Mean	18,97%	*Mean*	-23,55%
Stdev	38,38	*Stdev*	191,88
Min	-87,73%	*Min*	-1858,8%
Max	222,22%	*Max*	66,11%
Tobin's *q*		**GoCs**	
Mean	0,46	*Mean*	3,59
Stdev	0,24	*Stdev*	11,65
Min	-0,17	*Min*	-37,34
Max	0,97	*Max*	34,39
Board Size		**Corp. Struc.**	
Mean	7.88	*One-tier*	9
Stdev	3.55	*Two-tier*	86
Min	2		
Max	21		
NoE		**CCD**	
≥ 100.0001	3	*No Duality*	8
10.001 - 100.000	25	*CEO/Chairman of MB*	85
1.001 - 10.000	29	*CEO/Chairman of SB*	2
0 - 1000	31	*CE/ member of SB*	0

Notes: Stdev is the standard deviation of the mean BHR, ROA, Tobin's *q*, Board Size or GoCs, min refers to the lowest and max refers to the highest. Corporate structure, CCD or NoE distribution refers to the number of board members per classification. Total distribution might not sum op to the total sample number due to missing information for some units of analysis.

Appendix 7: Correlation Table for Management boards (the boards of the one-tier companies are included).

	BHR	ROA	Tobin's *q*
EduDiv	0.065	0.133	0.124
NatDiv	0.058	0.084	0.016
AgeDiv	0.020	0.185	0.103
GenDiv	0.245	0.064	0.131

Appendix 8: Correlation Table for Supervisory boards.

	BHR	ROA	Tobin's *q*
EduDiv	0.185	0.052	0.068
NatDiv	0.062	0.130	0.105
AgeDiv	0.142	0.046	0.001
GenDiv	0.160	0.135	0.026

Appendix 9: Correlation Table for all Variables of My Model and all Companies.

	BHR	ROA	Tobin's *q*	EduDiv	NatDiv	AgeDiv	GenDiv	NoE	GoCs	CCD	Board Size
BHR	1										
ROA	0.200	1									
Tobin's *q*	0.098	0.277	1								
EduDiv	0.013	0.227	0.124	1							
NatDiv	0.081	0.149	0.096	0.296	1						
AgeDiv	0.083	0.171	0.062	0.109	0.027	1					
GenDiv	0.180	0.115	0.008	0.231	0.296	0.263	1				
NoE	0.146	0.103	0.001	0.181	0.360	0.019	0.234	1			
GoCs	0.098	0.361	0.052	0.145	0.030	0.099	0.072	0.033	1		
CCD	0.041	0.030	0.033	0.082	0.299	0.006	0.105	0.233	0.150	1	
Board Size	0.009	0.202	0.223	0.212	0.473	0.261	0.391	0.583	0.012	0.041	1

Appendix 10: Multiple Variate Regression Analysis for Management Boards.

	Model 1			Model 2			Model 3			Model 4		
Dependent variables	ROA	Tobin's *q*	BHR	ROA	Tobin's *q*	BHR	ROA	Tobin's *q*	BHR	ROA	Tobin's *q*	BHR
Independent variables												
EduDiv				0.080	0.031	-6.845				0.339	0.034	-6.672
				(4.417)	(0.084)	(8.941)				(4.382)	(0.084)	(9.010)
NatDiv							-6.502	-0.072	-4.646	-6.516	-0.074	-4.357
							(4.540)	(0.087)	(9.380)	(4.584)	(0.088)	(9.425)
Control variables												
GenDiv	-2.928	-0.008	33.908***	-2.930	-0.009	34.121***	-1.969	0.003	34.593***	-1.978	0.002	34.758***
	(4.670)	(0.089)	(9.502)	(4.712)	(0.089)	(9.540)	(4.677)	(0.090)	(9.663)	(4.719)	(0.090)	(9.704)
AgeDiv	-0.400	0.005	-1.123	-0.400	0.004	-1.041	-0.274	0.006	-1.033	-0.277	0.006	-0.959
	(0.570)	(0.011)	(1.160)	(0.578)	(0.011)	(1.169)	(0.572)	(0.011)	(1.182)	(0.579)	(0.011)	(1.191)
NoE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GoCs	0.482***	0.001	0.565**	0.482***	0.001	0.533**	0.461***	0.001	0.550**	0.462***	0.001	0.520*
	(0.126)	(0.002)	(0.257)	(0.129)	(0.002)	(0.261)	(0.126)	(0.002)	(0.260)	(0.128)	(0.002)	(0.264)
CCD	-7.698	0.074	-24.753	-7.709	0.070	-23.754	-5.975	0.093	-23.523	-6.021	0.089	-22.625
	(9.166)	(0.174)	(18.650)	(9.267)	(0.175)	(18.761)	(9.165)	(0.176)	(18.934)	(9.263)	(0.177)	(19.047)
Board Size	0.545	0.007	0.528	0.543	0.007	0.678	0.926	0.012	0.800	0.920	0.011	0.930
	(0.596)	(0.011)	(1.212)	(0.609)	(0.012)	(1.232)	(0.648)	(0.012)	(1.338)	(0.659)	(0.013)	(1.355)
N	66	66	66	66	66	66	66	66	66	66	66	66
R^2	0.234	0.019	0.235	0.235	0.021	0.243	0.261	0.030	0.239	0.261	0.033	0.246

Notes: Robust standard errors between brackets, beneath the parameter estimates. Significance: *** means significant at 1 % level, ** significant at 5 % level, * significant at 10 % level.

Appendix 11: Multiple Variate Regression Analysis for Supervisory Boards

	Model 1			Model 2			Model 3			Model 4		
Dependent variables	ROA	Tobin's *q*	BHR	ROA	Tobin's *q*	BHR	ROA	Tobin's *q*	BHR	ROA	Tobin's *q*	BHR
Independent variables												
EduDiv				-8.484	-0.182	-21.443				-10.476	-0.199	-19.886
				(7.363)	(0.139)	(15.453)				(7.742)	(0.147)	(16.336)
NatDiv							2.180	-0.002	-7.107	4.196	0.036	-3.280
							(4.733)	(0.090)	(9.958)	(4..931)	(0.093)	(10.404)
Control variables												
GenDiv	-2.815	-0.049	26.972***	-0.872	-0.007	31.882***	-2.916	-0.049	27.303***	-0.611	-0.005	31.678***
	(4.602)	(0.087)	(9.707)	(4.890)	(0.092)	(10.262)	(4.638)	(0.088)	(9.757)	(4.911)	(0.093)	(10.361)
AgeDiv	0.608	0.002	-1.199	0.635	0.003	-1.131	0.648	0.002	-1.330	0.719	0.003	-1.196
	(0.643)	(0.012)	(1.357)	(0.642)	(0.012)	(1.347)	(0.653)	(0.012)	(1.375)	(0.651)	(0.012)	(1.374)
NoE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GoCs	0.486***	0.001	0.470*	0.493***	0.001	0.487*	0.494***	0.001	0.444*	0.510***	0.001	0.474*
	(0.124)	(0.002)	(0.262)	(0.124)	(0.002)	(0.260)	(0.126)	(0.002)	(0.266)	(0.126)	(0.002)	(0.266)
CCD	-4.478	0.058	-22.363	-7.011	0.004	-28.765	-4.722	0.058	-21.566	-8.075	-0.005	-27.932
	(8.638)	(0.163)	(18.219)	(8.891)	(0.168)	(18.660)	(8.712)	(0.165)	(18.328)	(8.999)	(0.171)	(18.988)
Board Size	0.417	0.011	-0.475	0.229	0.007	-0.952	0.300	0.011	-0.094	-0.041	0.005	-0.741
	(0.609)	(0.012)	(1.284)	(0.629)	(0.012)	(1.319)	(0.663)	(0.013)	(1.395)	(0.705)	(0.013)	(1.488)
N	67	67	67	67	67	67	67	67	67	67	67	67
R^2	0.230	0.023	0.179	0.247	0.050	0.205	0.233	0.023	0.186	0.257	0.053	0.206

Notes: Robust standard errors between brackets, beneath the parameter estimates. Significance: *** means significant at 1 % level, ** significant at 5 % level, * significant at 10 % level.

Appendix 12: Multiple Variate Regression Analysis Table for all Boards.

	Model 1			Model 2			Model 3			Model 4		
Dependent variables	ROA	Tobin's *q*	BHR	ROA	Tobin's *q*	BHR	ROA	Tobin's *q*	BHR	ROA	Tobin's *q*	BHR
Independent variables												
EduDiv				-3.610	-0.056	-3.457				-3.333	-0.054	-0.463
				(7.812)	(0.143)	(17.759)				(7.956)	(0.145)	(17.903
NatDiv							-1.553	-0.021	-14.315	-1.378	0.013	-14.875
							(5.567)	(0.102)	(12.518)	(5.750)	(0.105)	(12.938
Control variables												
GenDiv	-4.523	-0.061	34.946***	-4.125	-0.060	35.584***	-4.429	-0.060	35.816***	-4.039	-0.060	36.522***
	(5.337)	(0.097	(12.118)	(5.483)	(0.100)	(12.465	(5.387)	(0.098)	(12.113)	(5.537)	(0.101	(12.460
AgeDiv	0.422	0.003	-0.572	0.386	0.003	-0.639	0.384	0.003	-0.922	0.351	0.003	-1.018
	(0.688)	(0.013)	(1.563)	(0.705)	(0.013)	(1.602)	(0.707)	(0.013)	(1.589)	(0.725)	(0.013)	(1.631)
NoE	0.000	-0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GoCs	0.387***	0.001	0.294	0.377***	0.001	0.285	0.384***	0.001	0.261	0.375***	0.001	0.260
	(0.119)	(0.002)	(0.270)	(0.123)	(0.002)	(0.279)	(0.121)	(0.002)	(0.271)	(0.124)	(0.002)	(0.279)
CCD	5.012	0.800	4.128	4.595	0.075	3.646	4.744	0.076	1.660	4.379	0.073	1.311
	(6.022)	(0.110)	(13.672)	(6.161)	(0.112)	(14.006)	(6.141)	(0.112)	(13.809)	(6.273)	(0.115)	(14.117)
Board Size	0.474	0.012	-1.132	0.483	0.012	-1.101	0.552	0.014	-0.416	0.554	0.013	-0.331
	(0,587)	(0.011)	(1.355)	(0.608)	(0.011)	(1.383)	(0.662)	(0.012)	(1.489)	(0.681)	(0.012)	(1.534)
N	71	71	71	70	70	70	71	71	71	70	70	70
R^2	0.180	0.034	0.159	0.182	0.037	0.160	0.181	0.35	0.176	0.183	0.037	0.178

Notes: Robust standard errors between brackets, beneath the parameter estimates. Significance: *** means significant at 1 % level, ** significant at 5 % level, * significant at 10 % level.