

The effect of gender, age and nationality diversity on company performance – Evidence from the Netherlands

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ABSTRACT

This study examines the relationship between board diversity and company performance in the Netherlands. There are three dimensions of diversity investigated; gender diversity, age diversity and nationality diversity. Gender diversity is measured as the percentage of women. Nationality diversity is measured as the percentage of non-Dutch directors on the board. Age diversity is measured by the percentage of directors in a specific age group. Company performance is measured with return on assets (ROA), return on equity (ROE), Tobin's Q and total shareholder return (TSR). The results show a negative, non-linear relationship between nationality diversity and company performance. Also a negative, non-linear relationship between directors from 41 till 50 years old and company performance is found. There are no relationships found between the percentage of women and directors of other age groups.

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Keywords

Diversity, company performance, age, gender, nationality

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1. Introduction

In the past, boards consisted most of the time only of white men. Nowadays there are more diverse boards. Several European countries such as Germany and Norway have introduced gender quota in boards as the output of public debate (Engelen *et al.*, 2012). In the Netherlands there is an ongoing discussion about gender quota. Companies feel pressure to assign more women on boards (Engelen *et al.*, 2012). Also minorities and women are becoming a larger proportion of the workforce in comparison to white males. There is thus a change in the pools of potential candidates for boards (Erhardt *et al.*, 2003). The effects of the quota and the changed pool of candidates are more diverse boards, but are more diverse boards better than homogenous boards?

Several researchers already investigated the effect of board diversity. However there is no consistent answer found. Erhardt *et al.* (2003) found a positive effect of gender and ethnic diversity on firm financial performance, while Rondøy, Thomsen & Oxelheim (2006) found no diversity effect of gender, age and nationality on stock market performance or on RAO (return on assets). The mixed results might be explained by the contingent nature of boards. Certain dimensions of diversity may be beneficial in some countries, but not in others (Engelen *et al.*, 2012). Ruijgrok *et al.* (2007) also says it is important to take national circumstances into account, rather than relying on research results from other countries. Findings thus cannot be extended across national boundaries. Therefore it is important to investigate the effect of board diversity on company performance in different countries, instead of generalizing the conclusions. A lot of researches focused on the effect of board diversity on company performance in the US (Kang *et al.*, 2007). There is not a lot of research done about the effect of board diversity on company performance in the Netherlands. Only Engelen *et al.* (2012) investigated whether board diversity has a positive effect on company performance during the financial crisis in the Netherlands. This research only focused on the effect during the financial crisis, instead of in general. Therefore it is important to investigate whether board diversity in general has an effect on company performance. This investigation is important for companies in the Netherlands, because after this investigation they will know if they have to diversify their boards and on which variables in order to get the highest performance. The research question of this paper is: *Does gender, age and nationality diversity among board members affect company performance in the Netherlands?*

In this paper boards of 100 Dutch companies listed on Euronext Amsterdam, will be investigated. This will be done by investigating the annual reports. The annual reports of 2013 will be used, because all companies published annual reports of 2013, while some did not publish the annual report of 2014 yet.

This article will be structured as follows: Section 2 is the literature review, where previous findings are discussed. Section 3 introduces theories and the hypothesis. Section 4 discusses the method used to investigate the hypotheses. Section 5 presents the results and finally, section 6 concludes and section 7 discusses the limitations of the empirical study.

2. Literature review

As mentioned in the introduction, a lot of research has been done about the effect of board diversity on company performance. Previous research showed there was no clear relationship between board diversity and company performance. There are also different types of diversity used, such as age diversity, gender diversity etcetera. Not all researches focus on the same variables, therefore in this section will only be focused on variables that will also be used in this article.

2.1 Gender diversity

The effect of gender diversity on company performance is the most studied type of diversity. This is because there are now in different countries gender quota introduced. It is important to study the relationship between gender diversity and company performance, because then the effect of the gender quota will be known. There is no consistent relationship between gender diversity and company performance found. Most of the research is done in the US, but even these studies in the same country find different relationships. Erhardt *et al.* (2003) find a positive relationship between gender diversity and firm financial performance. Carter *et al.* (2002) finds a positive effect between gender diversity and firm valuation. A negative effect is found between gender diversity and firm performance by Adams & Ferreira (2008). In Scandinavian countries, no positive effect of gender diversity on firm performance is found. Rondøy *et al.* (2006) found no effect between gender diversity and firm performance for all Scandinavian countries. Ahern and Dittmar (2011) found a negative effect between gender diversity and company performance in Norway. In other countries, there is also no consistency in findings of researchers. Engelen *et al.* (2012) find no relationship in the Netherlands and Gallego-Álvarez *et al.* (2009) finds no relationship in Spain. Nguyen & Faff (2006) find a positive relationship in Australia, Terjesen, *et al.* (2015) find a positive relationship in their multi-country study and Julizaerma & Sori (2012) find a positive relationship in Malaysia. Low *et al.* (2014) also find a positive relationship in Malaysia and in Hong-Kong, South-Korea and Singapore, but they say the positive effects are diminished in countries with higher female economic participation and empowerment.

2.2 Age diversity

Age diversity is a less studied variable of board diversity. It is important to study age diversity, because most of the time are only people from above 60 years old on boards (Kang *et al.*, 2007, Rondøy *et al.*, 2006, Engelen *et al.*, 2012). Therefore it is important to investigate if this is optimal, or that the inclusion of younger people may have a positive effect on firm performance. There are different conclusions about the effect of age diversity on company performance. Rondøy *et al.* (2006) found no effect between age diversity and company performance in Scandinavian countries. Engelen *et al.* (2012) find a hyperbolic relationship between age diversity and company performance in the Netherlands. This means that age diversity will increase company performance, but until a certain point. From that point, more age diversity will decrease company performance. Mahadeo *et al.* (2011) found no positive effect of age diversity on company performance alone. They did find a positive relationship of age diversity when combined with other variables of diversity, namely; age, educational background and independence in a corporate context.

2.3 Nationality diversity

Nationality diversity is also not studied a lot. In the Netherlands live a lot of people with different nationalities and the amount of people with different nationalities is growing. Therefore it is important to investigate the effect of nationality diversity on boards, because in the future more and more people from different nationalities may be candidates for board positions (Erhardt *et al.*, 2003). There is no negative effect of nationality diversity on company performance found. Previous studies found positive effects or no effect at all of nationality diversity on company performance. Erhardt *et al.* (2003) found a positive effect of minorities on company performance in the US, Carter *et al.* (2002) found positive effect of nationality diversity in the US and Richard (2000) also found a positive effect of racial diversity on company performance. There are also studies which

did not find any effect of nationality diversity on company performance, such as: Engelen et al. (2012) in the Netherlands and Rondøy et al. (2006) in Scandinavian countries.

From the information above can be concluded that there are no consistent relationships found between gender diversity, age diversity, nationality diversity and company performance. There are different relationships found in different countries, but also in the same countries.

3. Hypotheses

There will be two different theories used to predict the effect of board diversity on firm performance. Theories that will be used are the agency theory and the resource dependence theory.

3.1 Agency theory

The agency theory is about solving the agency problem. The agency problem occurs, because of the separation between ownership and management. The owners (shareholders) hire executives to manage companies on their behalf. These managers thus act on behalf of the principal. The problem is that the shareholders do not know for sure if the managers will manage the assets well. A board is one of the solutions for solving the agency problem. The board stands between the shareholders and the managers. The board ratifies investment decisions and may replace management on behalf of the shareholders (Thomsen & Conyon 2012). Kang et al. (2007) state that if the function of the board is to protect the interests of the shareholders, then the board should comprise members that are representative of these shareholders. Shareholders are not homogenous, so a homogenous board is not representative of a heterogeneous group of shareholders. Therefore a more diverse board will be better for solving the agency problem. A positive relationship between board diversity and company performance is expected.

3.2 Resource dependence theory

Another important theory is the resource dependence theory. *“Resource dependence theory addresses how a board might facilitate access to valuable resources. The emphasis is on a firms’ ability to form links to secure access to critical resources such as capital, customers, suppliers, or cooperative partners”* (Rondøy, et al., 2006). A more diverse board might have more access to different sorts of resources. For example, a more diverse board is better able to understand the customer group, because a more diverse board has different insights. Thomsen & Conyon (2012) state the following: *“Boards that are diverse in ethnicity, gender, experience, education and background possess a considerable range of different knowledge and skills. Directors on diverse boards have greater insights into markets, customers, employees and business opportunities. This leads to a better understanding of business conditions, and in turn to better company performance”*. Therefore a positive relationship between board diversity and company performance is expected.

Following these two theories the hypothesis is: *Board diversity has a positive impact on company performance.*

4. Method

The impact of age, gender and nationality diversity on company performance will be measured by a multiple regression analysis. Multiple linear regression models the relationship between two or more independent variables and a dependent variable. This method is used, because a linear relationship is expected. There is expected that more diversity will lead to more company performance. This will be tested by a multiple linear regression analysis. The outcome will show with how much the dependent variable changes, when the independent variable changes with 1.

When this change is significant, we say there is a relationship between the two variables. The multiple regression analysis can establish a linear equation:

$$Y = a + b_1 * X_1 + b_2 * X_2 + \dots + b_p * X_p \quad (1)$$

The multiple regression analysis can measure if age, gender and nationality diversity have an effect on company performance and if this effect is positive or negative. The regression analysis will be performed with the program SPSS. The regression analysis from SPSS will provide information about how much the independent variables explain the dependent variable (R square), if the relationship is significant and if the effect is positive or negative. It is possible that the relationship is not linear and that therefore the multiple regression analysis will not show any relationships. If that is the case, a quadratic regression analysis will be done.

Quadratic regression analysis investigates if there is a non-linear relationship between the independent variables and the dependent variable. The quadratic regression equation is as follows:

$$y = ax^2 + bx + c \quad (2)$$

The quadratic regression analysis will also show how much the dependent variable changes when the independent variables changes with 1 and if this change is significant. The difference is, that this change is then, not linear.

Before measuring the impact of board diversity on company performance, there has to be measured if the variables have impact on each other. If variables have an impact on each other, this can mean that there is competition or substitution between different kinds of diversity (Rondøy et al. 2006). The effect of variables on each other can be measured by correlation. The correlation will show the linear relationship between two sets of data. When the correlation is between -0,5 and 0,5 there is no problem. When the correlation is higher than 0,5 or lower than -0,5 there can be competition or substitution between different kinds of diversity.

4.1 Independent variables

The independent variables are gender, age and nationality diversity. Gender diversity will be measured as the percentage of women on boards. The total amount of women on the boards in all sample companies will be divided by the total amount of board members in all sample companies. This is also done by Rondøy et al. 2006, Erhardt et al. (2003), Terjesen, et al. (2015) and Kang et al. (2007). Age diversity will be measured differently, due to the numerical value of age. Age diversity will be measured by composing age groups and then measure the percentage of board members in each age group. This will be done by dividing per age group the amount of people in all sample companies in that group by the total amount of board members in all sample companies. This method is also used by Siciliano (1996) and Engelen et al. (2012). The age groups used will be: till 40, 41 till 50, 51 till 60, 61 till 70 and above 71. Nationality diversity will be measured as the percentage of people with nationalities other than Dutch on boards. The total amount of people with other nationalities in all sample companies will be divided by the total amount of board members in all sample companies. This is also done by Rondøy et al. (2006) and Erhardt et al. (2003).

4.2 Dependent variable

The dependent variable, firm performance, will be measured in four different ways. It will be measured by return on assets (ROA), which is a measure of how profitable a company is. The ROA is estimated by dividing the net income by total assets. This is a variable of company performance, because a higher profitability means better performance.

The second measure is Tobin's Q. "Tobin's Q is defined as the sum of total assets less the book value of equity plus the market value of equity, divided by total assets and provides an indication of the firm's expected performance. A Tobin's Q greater than one means that the shareholders believe the company is worth more than its book value; a value smaller than one means that the market is expecting the company to destroy shareholders' value in the future" Terjesen, et al. (2015).

The third measure is the total shareholder return (TSR). By using this measure, companies can be compared on how much the shareholders earn. This is important following agency theory. Agency theory states that managers should act in the best interests of the shareholders. Shareholders want the TSR to be as large as possible. Therefore it is a good measure for company performance, following the agency theory. The TSR is calculated as follows:

$$\frac{\text{Appreciation rate}}{\text{Dividend yield}} \quad (3)$$

The appreciation rate is calculated as follows:

$$\frac{\text{End share price} - \text{opening share price}}{\text{Opening share price}} \quad (4)$$

The dividend yield is calculated as follows:

$$\frac{\text{Sum of dividends per share}}{\text{Opening share price}} \quad (5)$$

The fourth way to measure company performance is the return on equity (ROE). The ROE measures how profitable the company is by showing how much profit the company generates with the money that the shareholders invested. The ROE can be calculated by dividing the net income by the shareholders' equity.

4.3 Control variables

Also seven control variables will be used, to see if the relationship between board diversity and company performance is not caused by some third variable. The control variables that will be used are firm size, board size, firm industry, capital expenditure, leverage, firm age and corporate structure. Firm size will be measured as the number of employees in the company in the observed year. Larger firms have also larger profits, therefore it is important to investigate whether firm size is related to company performance. Board size will be measured as the number of people on the board. Board size can also be explained by the resource dependence theory. According to the resource dependence theory, larger boards have been associated with better performing organizations. Boards with more board members have more access to external resources, but they also

facilitate wide community representation (Siciliano, 1996). Therefore larger boards can make larger profits. That is why controlling if there is a relationship between board size and company performance is important. Firm industry will be documented by coding the type of industry the company is in. It can differ per industry how much profit a company makes. Capital expenditure can be found in the cash flow statement of a company. Mostly a large capital expenditure means higher profits. Therefore it is useful to investigate whether capital expenditure and company performance is related. Leverage is measured as debt divided by equity. High leverage means the company uses a lot of debt to finance activities. Low leverage means the company uses more equity to finance activities. Low leveraged firms have less financing costs, because equity is cheaper than debt. Therefore low leveraged firms make higher profit in general. Firm age is measured as the difference between the start-up year and 2013. Older firms are more likely to make profit than younger firms, therefore it is important to look if there is a relationship between firm age and company performance. The last control variable is corporate structure. This means if a company has a one- or two-tier board. Most Dutch companies have two-tier boards, but there are exceptions.

5. Data

In this paper boards of 100 Dutch companies listed on Euronext Amsterdam, will be investigated. This will be done by investigating the annual reports. The annual reports of 2013 will be used, because these are the newest annual reports that are published. Not all companies included information about every variable, therefore the number of companies investigated can differ per variable.

In Table 1 there is an overview of how much of the total directors are male or female. From the 813 directors, only 14,4% is female in the Netherlands. The table also gives information about how much of the total directors are Dutch or non-Dutch. From the 711 directors included, 38,5% are non-Dutch. There is also an overview of how many directors fall in a specific age category.

	Frequency (no. of directors)	Percentage (%)
<i>Gender</i>		
Total number of directors	813	100%
Positions occupied by male directors	696	85,6%
Positions occupied by female directors	117	14,4%
<i>Age</i>		
Number of directors whose age is disclosed	713	100%
Directors under 41	18	2,5%
Directors between 41 and 50	154	21,6%
Directors between 51 and 60	232	32,5%
Directors between 61 and 70	274	38,4%
Directors over 71	35	4,9%
<i>Nationality</i>		
Number of directors whose nationality is disclosed	711	100%
Directors with a Dutch nationality	437	61,5%
Directors with a non Dutch nationality	274	38,5%

Table 1

From the 713 directors included, only 2,5% is under 41. Most of the directors (38,4%) are between 61 and 70.

<i>Composition of the board</i>	Frequency (no. of companies)
No female directors	40
1 female director	24
2 female directors	23
More than 2 directors	13
Total	100
<i>Composition of the managementboard</i>	
No female directors	54
1 female director	16
2 female directors	2
More than 2 directors	0
Total	72
<i>Composition of the supervisory board</i>	
No female directors	29
1 female director	28
2 female directors	11
More than 2 directors	4
Total	72

Table 2

In Table 2 there is an overview of how many boards have women as board members. From the 100 companies, 40 companies do not have a woman on the board. 24 companies have 1 woman, 23 companies have 2 women and only 13 companies have more than 2 women in the board. If we split the board in management board and supervisory board, we can see that women are most likely to be on the supervisory board. From the 72 companies with a management board, 54 of them do not have a woman on the management board.

In Table 3 there is an overview of how many boards have non-Dutch directors on the board. From the 86 companies, 27 have no non-Dutch directors. If a company has non-Dutch directors, they are most likely to have more than 2. 36 companies have more than 2 non-Dutch directors. If we split the boards in management and supervisory boards, we can see that the

<i>Composition of the board</i>	Frequency (no. of companies)
No non-Dutch directors	27
1 non-Dutch director	13
2 non-Dutch directors	10
More than 2 directors	36
Total	86
<i>Composition of the managementboard</i>	
No non-Dutch directors	41
1 non-Dutch director	12
2 non-Dutch directors	9
More than 2 directors	8
Total	70
<i>Composition of the supervisory board</i>	
No non-Dutch directors	32
1 non-Dutch director	11
2 non-Dutch directors	10
More than 2 directors	17
Total	70

Table 3

<i>Age of directors</i>	Frequency (no. of companies)
Within 1 age category	4
Within 2 age categories	20
Within 3 age categories	48
Within 4 age categories	19
Within 5 age categories	3
Total	94
<i>Age of directors of the managementboard</i>	
Within 1 age category	25
Within 2 age categories	40
Within 3 age categories	7
Within 4 age categories	0
Within 5 age categories	0
Total	72
<i>Age of directors of the supervisory board</i>	
Within 1 age category	9
Within 2 age categories	32
Within 3 age categories	22
Within 4 age categories	4
Within 5 age categories	0
Total	67

Table 4

management board is not likely to have non-Dutch members. From the 70 companies, 41 do not have a non-Dutch member in the management board.

In Table 4, there can be seen how many companies diversify on age of directors. If companies have member in 1 age category, this means they do not diversify age. If companies have members in 5 age categories, this means they do diversify age very well. From the 94 companies, only 3 have members in 5 age categories. Most companies (48) have members in 3 age categories.

In Table 5, there is an overview of the average board size. There is also an overview of the average management board size and the average supervisory board size.

Variable	N	Mean	Std. Dev	Min	Max
Average (avg) board size	100	9,5	3,29	2	18
Avg management board size	73	2,8	1,54	1	10
Avg supervisory board size	73	5,2	2,31	1	13

Table 5

6. Results

First there is checked whether some of the variables correlate with each other. This is shown in table 6. From this table can be concluded that only company size and percentage of non-Dutch directors and corporate structure and non-Dutch directors are correlated in a moderate way. The rest of the variables are not correlated or weakly correlated. Because the correlation is not strong, it will not be a problem in the analysis.

After the correlation, there has been done a multiple linear regression analysis. The table with the outcome is shown in Appendix A. The relationship between the ROA and independent – and control variables is weak, because the R² is very low. If we look at the relationships between the different variables and the ROA, we see that only the relationship between industry and the ROA and leverage and ROA is significant. These control variables both have a negative impact. This means that the control variable instead of the independent variables predict the dependent variable. The impact of the independent variables and the rest of the control variables is not significant. Thus the impact found, could also be a coincidence.

The relationship between the variables and the ROE is also shown in Appendix A. The overall relationship between the variables and the ROE is weak, because the R² is low. Again, we can see that the independent- and control variables have no significant impact on the ROE. Thus the impact found, could also be a coincidence.

The relationship between the variables and Tobin's Q is shown in Appendix A. The overall relationship between the independent variables and Tobin's Q is strong, because the R² is 0,541. If we look at the different variables, we see again that there are no significant relationships found between the independent variables and Tobin's Q. There are significant relationships found between leverage, corporate structure, board size and Tobin's Q. Board size has a positive effect, but corporate structure and leverage have a negative effect. This means that the control variable instead of the independent variables predict the dependent variable. The relationship between the variables and the Total Shareholder Return (TSR) is shown in Appendix A. The relationship between the TSR and the independent is strong, because the R² is 0,611. Again there is no significant relationship between the independent- and control variables and the TSR.

The control variables do not have an effect on the ROE, Tobin's Q and the Total Shareholder Return. Only industry has a significant effect on the ROA. This means that the industry has an effect on the ROA and not the diversity of the boards. The relationships between the control variables and the dependent variables are shown in Appendix A.

Since there is no effect found with linear regression, there will be done a quadratic regression analysis, to check if there may be a non-linear effect. In Appendix B, the results from the quadratic regression analysis are shown.

There is still no significant effect between the percentage of women and the dependent variables found. The effect of the percentage of non-Dutch on the ROE, Tobin's Q and TSR is not significant. The effect of non-Dutch directors on the ROA is significant on a 90% confidence level. The effect of non-Dutch directors on the ROA is negative, thus the more non-Dutch directors, the smaller the ROA. The effect of the different age groups on the dependent variables is different. There is no significant effect found between directors till 40 and the dependent variables. There is also no significant effect found between directors from 41 till 50 and the ROA, ROE and TSR. There is a negative, significant effect found between directors from 41 till 50 and Tobin's Q. There are also no significant effects found between directors from 51 till 60 and the dependent variables, between directors from 61 till 70 and the dependent variables and directors above 71 and the dependent variables.

There is also tested is the control variables have an effect on the dependent variables. The effect found between leverage and ROA is not significant. The effects found between leverage and ROE, Tobin's Q and TSR are all significant. There is no significant effect found between company age and the dependent

	% Women	% Non-Dutch	Age groups	ROA	ROE	Tobin	TSR	Leverage	Age	Capex	Sales growth	Industry	Company size	Corporate structure
% Women	1													
% Non-Dutch	0,10247965	1												
Age groups	0,1921988	0,179942857	1											
ROA	-0,16429809	0,091888189	0,0771599	1										
ROE	-0,147352	0,218531582	0,0588952	0,673918	1									
Tobin	0,0157294	-0,064529507	0,1375638	-0,0273094	-0,0578455	1								
TSR	0,16072016	0,043188006	-0,0633094	0,1847816	0,137927	-0,0037876	1							
Leverage	-0,00117155	-0,056611134	0,005301	0,001257	0,007691	-0,0147411	-0,0378939	1						
Age	0,1870457	-0,011306935	-0,0779398	0,0485486	0,1084426	0,1328407	0,0105651	0,2849331	1					
Capex	-0,00495619	0,158749675	-0,1060908	0,0077797	-0,0066563	-0,0185693	0,01512	-0,0175475	0,0744197	1				
Sales growth	-0,12150395	0,064858099	-0,1463461	0,4765052	0,1349536	-0,0136738	-0,1324093	-0,0253835	-0,0454716	-0,0204008	1			
Industry	0,16784622	0,232052291	0,0815774	0,0673448	-0,1124611	0,0883267	-0,0768113	-0,1288976	0,0006468	0,1272324	0,0834037	1		
Company size	0,37326792	0,446267019	0,0942915	0,0548265	0,0167808	0,0070522	0,0809282	-0,045546	0,2394493	0,2691716	-0,0497855	0,2890544	1	
Corporate structure	-0,00216299	-0,483197274	-0,0524856	-0,0487357	-0,2193881	0,0466786	-0,0425314	0,0576004	-0,0300978	-0,1921327	0,0352363	0,0657587	-0,2357939	1

Table 6

variables. There are also no significant effects found between sales growth and the dependent variables and between the industry and the dependent variables. There is no significant effect found between firm size and the dependent variables. There is no effect found between corporate structure and the dependent variables.

There is no relationship found between board diversity and company performance, if we look at the board as a whole. Now we look at the results when the boards are split in management board and supervisory board. This only counts for two-tier boards, because one-tier boards do not have two boards.

The results of the impact of management board diversity on company performance is shown in Appendix C. The linear regression model shows no significant relationships between the independent and dependent variables. The quadratic regression analysis shows some relationships. There is a relationship between age 41 till 50 and the ROA and ROE, these relationships are significant and negative. There is also a negative, significant relationship between the percentage of women and the TSR. A negative, relationship between age 51 and 60 and TSR is also found.

The results of the impact of supervisory board diversity on company performance is shown in Appendix D. In the linear regression model are some relationships found. There are negative, significant relationships found between percentage of women and ROA and age 61 till 70 and Tobin's Q. There is a positive, relationship found between age above 70 and TSR. In the quadratic regression model are more relationships found. There are negative, significant relationships found between percentage of women and ROA and ROE. There are also negative, significant relationships found between percentage of non-Dutch directors and ROE and TSR. There are negative, significant relationships found between age 61 till 70 and ROE and between age 71 and above and ROE and Tobin's Q.

The linear regression analysis showed no effect of board diversity on company performance. The quadratic regression analysis showed a negative effect of non-Dutch directors on company performance and a negative effect of directors between 41 and 50 on company performance. There is no effect found between the percentage of women and company performance and between the other age groups and company performance. When we looked at the two boards apart, we found a lot of relationships, but none of these were positive. Therefore we reject the hypothesis: *Board diversity has a positive impact on company performance.*

7. Conclusions

This paper showed the relationship between board diversity and company performance. Previous research showed a lot of different results. Because of the contingent nature of the data, it was important to investigate the relationship between board diversity and company performance in the Netherlands, because previous researches were most of the time done in the UK and the US. The investigation started with choosing companies. There were 100 companies investigated listed on Euronext Amsterdam. There was information gathered on 3 types of diversity; gender, age and nationality. The dependent variables chosen were ROA, ROE, Tobin's Q and TSR. There were also control variables; board size, company age, company size, leverage, capital expenditure, sales growth and corporate structure.

From the theory, a positive relationship between board diversity and company performance was expected. There were two theories used, the agency theory and the resource dependence

theory. Both theories predicted a positive relationship between board diversity and company performance. Therefore the following hypothesis was stated: *Board diversity has a positive impact on company performance.*

The results were not as expected. A positive relationship was expected, but not found. There were no linear relationships between the independent- and control variables and the dependent variables. There were non-linear relationships found between non-Dutch directors, directors from 41 till 50 and the dependent variables. These relationships were negative. Also for some control variables were relationships found. For the rest of the variables were no non-linear relationships found. There was chosen to reject the hypothesis, because the relationships found were negative and the hypothesis predicted a positive relationship. The results suggest that gender diversity has no effect on company performance, non-Dutch directors have a negative effect on company performance and age diversity has no effect, except for when more 41 till 50 aged directors are in the board, then the effect is negative.

Then the boards were split in management board and supervisory boards. When this was done, more results were found. There were negative effects found between management board diversity and company performance. There were only non-linear relationships found between management board diversity and company performance. The results predict that women and people with the age 41 till 50 and age 51 till 60 in the management board have a negative effect on company performance.

Between supervisory board and company performance were also negative effects found. There were negative, linear effects between women and people with the age 61 till 70 on the supervisory board and company performance. The quadratic analysis showed more relationships. Women, non-Dutch persons, persons with the age 61 till 70 and 70 and above all have a negative effect on company performance.

Now the research question can be answered: *Does gender, age and nationality diversity among board members affect company performance in the Netherlands?* The answer is no for gender diversity and yes for nationality diversity and age diversity.

The theory predicted a positive relationship between board diversity and company performance. No positive relationships were found. This is possible because of the contingent nature of boards. Not every kind of diversity has a positive effect in every country, as explained before. The theory predicts the same outcome for every country, while this is not realistic in real life. Therefore it is not strange that no positive effect has been found.

8. Limitations and future research

This research was limited due to time restrictions. 10 weeks is not a lot of time for an investigation like this. Also the accessibility of data was a limitation, because not always everything was found in the annual reports. Some data could be accessed, but there need to be paid for. Because of the time restriction, there was no time to actively look for the gaps in the data. For example, some director's age was not known, but there was not enough time to contact all the companies about missing details of their directors. For future research I would suggest to take more time to gather the data, so it is as complete as possible. Furthermore I would suggest to gather more data, for example for 2 years instead of one. The relationships found were not significant, which means that the relationship could also be a coincidence. Therefore more data will help.

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Appendix A

Lineair regression model				
	ROA	ROE	Tobin's Q	TSR
	B	B	B	B
Independent variables				
R²	0,166	0,269	0,541	0,611
Women	0,26	1,45	0	0,496
NonDutch	-0,47	0,075	0,007	-0,431
Age till 40	0,038	0,348	0,048	-1,633
Age 41 till 50	0,005	-1,062	0,021	0,886
Age 51 till 60	-0,418	-1,8	0,027	0,085
Age 61 till 70	-0,286	-1,463	0,029	0,149
Age above 70	-0,18	-2,309	-0,001	1,2
Control variables				
R²	0,114	0,073	0,161	0,1
Leverage	** -0,434	-0,21	** -0,032	0,117
Company age	-0,003	-0,019	-0,001	0,017
Capital expenditure	1,89E-11	6,48E-11	-2,40E-11	-2,96E-11
Sales growth	-0,039	0,087	0	-0,025
Industry	* -0,733	-0,411	0,011	-0,206
Company size	1,59E-05	7,75E-05	-1,56E-06	1,82E-05
Corporate structure	-0,08	-2,515	** -0,471	-1,388
Board size	0,426	0,492	** 0,061	0,433
* Significant at a 95% confidence level				
** Significant at a 90% confidence level				

Appendix B

Quadratic regression model				
	ROA	ROE	Tobin's Q	TSR
	B	B	B	B
<u>Independent variables</u>				
Women	-0,002	0,003	0,001	0,1
NonDutch	** -0,002	-0,003	-4,23E-05	-0,002
Age till 40	0,019	0,041	0,001	0,011
Age 41 till 50	-0,003	-0,011	* -0,001	0
Age 51 till 60	0	-0,004	0	-0,002
Age 61 till 70	-0,001	-0,003	0	0
Age above 70	-0,004	-0,029	-0,001	0,042
<u>Control variables</u>				
Leverage	0,051	*0,139	*0,11	*-0,72
Company age	-7,77E-05	-8,29E-05	1,43E-05	0
Capital expenditure	-1,64E-20	-6,02E-20	2,20E-21	1,78E-20
Sales growth	-0,002	-0,003	0	-0,003
Industry	0,056	0,168	0,001	0,03
Company size	-2,27E-11	-5,75E-11	-6,15E-11	3,61E-10
Corporate structure	-0,519	-1,779	-0,297	-0,58
Board size	-0,019	-0,05	-0,004	0,024
* Significant at a 95% confidence level				
** Significant at a 90% confidence level				

Appendix C

Lineair regression model - Management board				
	ROA	ROE	Tobin's Q	TSR
	B	B	B	B
<u>Independent variables</u>				
R²	0,029	0,066	0,025	0,021
Women	-0,069	0,166	-0,162	0,048
NonDutch	-0,043	-0,314	0,052	0,029
Age till 40	-0,018	-0,219	0,039	-0,093
Age 41 till 50	-0,061	0,045	0,094	0,006
Age 51 till 60	x	x	x	x
Age 61 till 70	-0,034	-0,337	-0,027	-0,036
Age above 70	0,066	-0,073	-0,158	-0,128
* Significant at a 95% confidence level				
** Significant at a 90% confidence level				

Quadratic regression model - Management board				
	ROA	ROE	Tobin's Q	TSR
	B	B	B	B
<u>Independent variables</u>				
Women	-0,02	-0,02	0,004	*-0,024
NonDutch	-0,001	0,004	-0,004	-0,004
Age till 40	0,005	0,016	0,002	0
Age 41 till 50	** -0,007	*-,015	-0,001	-0,002
Age 51 till 60	-0,003	-0,004	-0,002	**-,002
Age 61 till 70	-0,002	0,006	0,001	-0,002
Age above 70	x	x	x	x
* Significant at a 95% confidence level				
** Significant at a 90% confidence level				

Appendix D

Lineair regression model - Supervisory board				
	ROA	ROE	Tobin's Q	TSR
	B	B	B	B
<u>Independent variables</u>				
R²	0,183	0,255	0,075	0,062
Women	**-,607	-0,84	0,125	0,133
NonDutch	0,191	0,395	-0,089	0,034
Age till 40	0,496	0,476	-0,05	-0,039
Age 41 till 50	-0,242	-0,135	-0,106	-0,041
Age 51 till 60	0,051	-0,068	0,106	0,026
Age 61 till 70	0,21	0,337	**-,022	0,024
Age above 70	-0,142	*-,1772	0,319	**0,011
* Significant at a 95% confidence level				
** Significant at a 90% confidence level				

Quadratic regression model - Supervisory board				
	ROA	ROE	Tobin's Q	TSR
	B	B	B	B
<u>Independent variables</u>				
Women	*-,06	*-,081	-0,01	-0,008
NonDutch	-0,006	**-,016	0,002	**-,002
Age till 40	-0,024	-0,036	0,005	0,005
Age 41 till 50	-0,019	-0,035	0,004	-0,006
Age 51 till 60	0,002	0,012	-0,002	-0,002
Age 61 till 70	-0,007	*-,018	-0,001	0
Age above 70	-0,02	*-,084	**-,015	-0,007
* Significant at a 95% confidence level				
** Significant at a 90% confidence level				