THE IMPORTANCE OF NON-FINANCIAL PERFORMANCE MEASURES DURING THE ECONOMIC CRISIS

Pim van Gijsel

726323

Master Thesis

MSc Accounting – Track: Accountancy

Supervisor: Dr. B. DIERYNCK

18 September

2012

Abstract

This paper investigates whether the importance of non-financial performance measures increased during the financial crisis. I find that since the start of the crisis more companies started to use non-financial measures. Also the number of non-financial measures and the percentage of the annual bonus determined by these measures increased during the crisis. The results also provide evidence for the fact that CEOs that are hired during the crisis are evaluated more on basis of non-financial measures than CEOs who are hired before the crisis. These results indicate that non-financial performance measures become more important when financial measures are subjected to noise.

Table of Contents

1. Introduction 1
2. Literature Review 2
   2.1. CEO Compensation 2
   2.2. Performance Measures 3
   2.3. Economic Crisis 5
3. Methodology 6
   3.1. Descriptive Statistics 9
4. Results 11
   4.1. Use of non-financials 11
   4.2. Number of non-financials 14
   4.3. Percentage of non-financials 18
   4.4. New CEOs 20
5. Conclusions 26
6. Literature List 27

1. Introduction

CEOs are assessed based on different performance measures. These measures can be divided in two main categories: financial and non-financial performance measures. Financial performance measures are measures such as firm profit and earnings per share; non-financial performance measures are measures such as market share, efficiency, and leadership. One of the main reasons to use non-financial performance measures for evaluating CEO performance is that these measures are positively associated with future financial performance (Banker, Potter, & Srinivasan, 2000). One important disadvantage of non-financial performance measures is that such measures are often company specific and, thus, hamper comparison with other firms.

In difficult economic times, financial performance measures are much more volatile and noisy. In other words, based on the financial performance measures, it is difficult to determine to what extent company performance is driven by external factors. Because of the reduced informativeness of the financial performance measures during an economic crisis, companies have to rely on other measures for evaluating the CEO. In this study, I will investigate whether the recent economic crisis has lead to an increase in the reliance on non-financial performance measures.

I investigate my research question based on data from firms listed on the Dutch stock exchanges, the AEX, AMX and AScX, from the years 2006 until 2011. The years 2006 and 2007 are considered as pre-crisis years; the years 2008 until 2011 are considered as crisis-years. My results are threefold. First, the number of companies that uses non-financial performance measures for evaluating the CEO has increased since the start of the crisis. Second, the number of non-financial measures that companies use increased during the crisis. Third, the percentage of the annual bonus determined by non-financial measures also increased since the start of the financial crisis. Together, the results provide evidence for an increased importance of non-financial performance measures during the recent economic crisis.

The contributions of this study are as follows. First, this study is one of the first to show how the economic crisis influenced evaluation of CEOs. Second, my results also confirm earlier findings from Ittner et al. (1997) that increased noise in financial performance measures leads to a higher emphasis on non-financial performance measures. Third, this study is also relevant in practice, since it shows that companies tend to adjust their remuneration schemes during economical difficult times.

In the next section the theoretical framework will be discussed. The research method and the results will be presented in section three and four. The conclusion can be found in section five.

2. Literature Review

2.1. CEO Compensation

When appointing a CEO, an agency problem arises. Specifically, the CEO, who is considered as the agent, takes actions which the owners, which are considered as the principal, cannot always observe. The interests of the CEO and the owners do not always match. CEOs, for instance, often have a more short-term perspective and want to meet or beat important benchmarks that are imposed by the market. The owners, on the other hand, often have a more long-term perspective and want a stable company. Typically, the CEO has the possibility to take actions that benefit him but that are not in the best interest of the firm (Grossman & Hart, 1983). To ensure that the CEO acts in the best interest of the firm, the owners design an incentive plan (Beatty & Zajac, 1994). An incentive plan typically consists of four basic components (Murphy, 1999). First, there is a base salary. This is the fixed amount of money the executives get paid. The other parts of the remuneration mostly depend on the base salary (Murphy, 1999).

Second, there could be an annual bonus based on accounting performance. This bonus is used to reward the executives for good single year's performance. Generally an annual bonus plan can be divided in three stages. In the first stage, no bonus is paid until a threshold performance is achieved. The second stage is when a minimum bonus is paid at the threshold performance. The last stage is when target bonuses are paid for achieving performance standards. In most contracts there is a cap on the paid bonuses (Murphy, 1999). The performance can be measured in different ways. Firms can chose for a single performance measure, but most firms use two or more different measures.

A third part of the incentive plan are stock options. These are contracts which give executives the right to buy a share of stocks at a pre-specified exercise price for a pre-specified term. A reason why firms choose for stock-based compensation is the constraint in liquidity, since stock-based compensation conserves cash on the grant date (Bryan, Hwang, & Lilien, 2000; Yermack, 1995). Even though the stock price impounds both financial and non-financial measures, a distinction that will be discussed later in this study, compensation contracts require the stock price to be supplemented with other measures. This is because the stock price is based on future cash flows as opposed to their informativeness about the action choices of the manager. Thus, as long as measures other than stock price convey information about desired managerial actions, they should be included in the bonus contract to efficiently motivate the manager (Feltham & Xie, 1994).

The last component is the long-term incentive plan. This is the part of the bonus plan that is based on the long term performance of the company. Where annual bonuses set short term targets, the long term incentive plan is typically based on rolling-average three or five-year cumulative performance (Murphy, 1999).

2.2. Performance Measures

The exact contribution of a manager is hard to measure because of three reasons (Feltham & Xie, 1994). First, the actions and strategies implemented by the manager are not directly observable, so that the manager cannot be compensated directly for the input into the firm. Second, the full consequences of the manager's actions are not observable, in large part because the impact of those actions often extends beyond his time as manager of the company. Third, uncontrollable events influence the consequences that are observed. As the exact contribution of a manager is hard to measure, companies have to rely on performance measures to evaluate the CEO. An ideal performance measure reflects a manager's contribution to firm value, including both static externalities across business units and dynamic effects of current actions on long-run value (Baker, Gibbons, & Murphy, 1994). Such ideal performance measures are, however, rare.

There are different types of performances measures that companies can use. The balanced scorecard method from (Kaplan & Norton, 1996) often serves as a basis for evaluation of CEOs. In general, the Balanced Scorecard, which consists of four different perspectives, consists of two types of measures: financial and non-financial performance measures. Financial performance measures, which can also be classified as accounting-related performance measures, are measures such as firm profit, earnings per share, sales growth or total shareholder return (Ibrahim & Lloyd, 2011). One important disadvantage is that the use of financial performance measures may lead to accrual manipulation. This can be explained by the bonus-maximization hypothesis (Watts & Zimmerman, 1986) which states that managers of firms with bonus plans are more likely to choose accounting procedures that shift reported earnings from future periods to current periods, or vice versa, under certain conditions. When an manager his earnings fall below the required target level, they are likely to manipulate earnings upwards and when the earnings are too much above the required target level, they are likely to manipulate earnings downwards (Healy, 1985). Another important disadvantage is that financial performance measures instigate managers to focus on the short term.

Non-Financial performance measures measure the non-financial aspects of the firm. Examples of non-financial performance measures are measures such as workforce development, product quality, customer satisfaction, on time delivery, innovation measures, attainment of strategic objectives, market share, efficiency, productivity, leadership and employee satisfaction

(Datar, Kulp, & Lambert, 2001; Ibrahim & Lloyd, 2011; Ittner, Larcker, & Rajan, 1997). Non-financial performance measures have several important benefits compared to financial performance measures. First, high performance on non-financial performance measures is positively related with future financial performance. In this way, non-financial performance measures can instigate the CEO to take actions that benefit the firm in the long term (Banker, Potter, & Srinivasan, 2000). Second, non-financial performance measures reduce the amount of earnings management (Ibrahim & Lloyd, 2011). One important limitation of non-financial performance measures is that they may be biased, that their computation may change over time and often differs between firms, which hamper comparison of performance between firms (Eccles & Mavrinac, 1995). Ittner et al. (1997) also argue that these non-financial performance measures are easier to manipulate than the financial measures since they are rarely subjected to public verification. As both financial and non-financial performance measures have advantages and disadvantages, combining both types of measures is often the best option. Said et al. (2003), for instance, find that combining financial performance measures with non-financial performance measures leads to a significant higher mean level of return on assets and a higher level of market return.

There are different determinants that affect the type of performance measures that are included in the compensation contract. First, the strategy of the firm is an important determinant as the strategy determines how and on which aspects the firm wants to outperform its competitors. Govindarajan and Gupta (1985) and Ittner et al. (1997) find that firms who follow the “build” strategy more rely on non-financial criteria, while firms who follow the “harvest” strategy make more use of financial measures. As adopting total quality management requires a greater reliance on non-financial quality measures, firms that follow a quality oriented strategy place more weight on non-financial performance measures (Ittner, Larcker, & Rajan, 1997).

Second, the amount of regulation also determines the reliance on non-financial performance measures and more regulated firms place relatively greater weight on non-financial performance measures. This indicates that those firms tend to create greater barriers to customer switching by providing higher levels of service quality and customer satisfaction (Ittner, Larcker, & Rajan, 1997).

Third, the noise of a metric also influences whether that metric will be used in a compensation contract as more noise reduces the informational value of a performance measure (Banker & Datar, 1989; Feltham & Xie, 1994; Ittner, Larcker, & Rajan, 1997). Thus, when the noise in financial measures increases, firms tend to place more weight on non-financial measures.

2.3. Economic Crisis

As a consequence of the collapsed real estate bubble in the United States in 2006 the world plunged in a financial crisis (Shiller, 2008). This is a severe crisis comparable to the great depression in 1929. The first signs of the credit crisis became visible in 2007 when monetary interest rates rose dramatically (Taylor, 2008) and in the spring of 2008 everybody had to deal with it since the industrial output began to fall (Almunia, Bénétrix, Eichengreen, O'Rourke, & Rua, 2010). The financial crisis influences the way in which companies behaved. For example companies choose to decrease the amount of investments they make. In this study there will be looked at the way the financial crisis influence the use of financial and non-financial performance measures.

As mentioned earlier Ittner, Larcker and Rajan (1997) find that if financial performance measures became less reliable, firms focus more on non-financial performance measures. Similarly, Banker and Datar (1989) point out that the noise in a performance measure affected the subjective weight placed on a certain performance measure. Specifically, when the noise on a measure increased, the weight placed on it decreased. In line with this prediction, Davila and Venkatachalam (2004) find that the importance of non-financial performance measures is affected by the noise in other performance measures. Since the financial crisis increases the noisiness of financial performance measures, it can be expected that firms will increase their reliance on non-financial performance measures for evaluating their CEOs.

An important characteristic of non-financial performance measures is that they positively affect future performance (Banker, Potter, & Srinivasan, 2000). Non-financial performance measures are also often considered as the process measures that should lead to good financial performance. Furthermore, firms especially want that managers guide the company through the crisis. In order to emphasize this to managers, firms can include more non-financial performance measures in the compensation contract of the manager. Another related argument is that firms often want to signal future perspectives to the market. During a crisis, for instance, firms want to signal that they will survive the crisis. Non-financial performance measures can be one possible way to signal good future perspectives.

As both argumentations support that idea that the crisis will increase the reliance on non-financial performance measures, I formulate the following hypothesis:

H1: During the economic crisis, firms rely more on non-financial performance measures to evaluate their CEOs.

3. Methodology

The data for this study are hand-collected from the annual reports of the publicly listed companies on three different Dutch stock exchanges (AEX, AMX, and AScX). In total, I will collect data of 75 companies (each stock exchange exist of 25 companies) for the period 2006 until 2011. Since the crisis started in 2008, 2006 and 2007 will be considered as pre-crisis years, and the years 2008 until 2011 will be considered as the crisis years.

The influence of the crisis on the importance of non-financial performance measures in CEO compensation contracts will be tested in four different ways. First, I will test whether more companies are using non-financial performance criteria during the crisis. The dependent variable for these tests is *UseNF* and has a value of 1 if the company uses non-financial performance indicators to evaluate the CEO and 0 if the company does not use non-financial performance indicators. Second, I will examine the influence of the crisis on the number of non-financial measures that is used in the compensation contract. The number of non-financial performance measures is measured by *NumNF*. Third, I will test the influence of the crisis on the percentage of the bonus that is determined by non-financial performance measures. The percentage of the annual bonus that is determined based on non-financial performance measures is measured by *PerNF*. In a fourth test, I will analyze the compensation contracts of CEOs that have been hired during the crisis. It could be that compensation contracts are signed for a longer period and difficult to revise because of the crisis.

The empirical models are as follows:

$$UseNF = \beta_1 * Crisis + \beta_2 * NewCEO + \beta_3 * IntCEo + \beta_4 * Sector + \beta_5 * Size + \beta_6 * ResPrevBY + \varepsilon$$

$$NumNF = \beta_1 * Crisis + \beta_2 * NewCEO + \beta_3 * IntCEo + \beta_4 * Sector + \beta_5 * Size + \beta_6 * ResPrevBY + \varepsilon$$

$$PerNF = \beta_1 * Crisis + \beta_2 * NewCEO + \beta_3 * IntCEo + \beta_4 * Sector + \beta_5 * Size + \beta_6 * ResPrevBY + \varepsilon$$

The test variable is *Crisis*, which is 0 for the pre-crisis years, 2006 and 2007, and 1 for the crisis years, 2008 until 2011. The other test variable is whether the CEO is newly hired during the year (*NewCEO*), which is 1 when a new CEO is hired during the year and 0 when the CEO was already active. Both variables will be tested in the different models presented above.

I will also include control variables that are known to influence the importance of non-financial performance measures. First, I control for company size (*Size*) by including the logarithm of the total assets (Aldamen, Duncan, Kelly, & McNamara, 2011). Previous research indicated that company size influences the usage of the balanced scorecard (Hoque & James, 2000). Since the distinction between financial and non-financial targets is part of the balance scorecard, firm size could have an impact on the use of non-financial performance measures. The value of the total assets will be collected from the Compustat database.

Second, I also include whether the company has an internal promoted CEO (*IntCeo*). Internal CEO's put more emphasis on planning for the future (Miller & Toulouse, 1986) and since non-financial performance measures are long term oriented, there could be a relation between the fact the CEO is internally promoted and the use of non-financial targets in his compensation contract. When a CEO was already employed at the company before he was hired as CEO, this variable will be 1.

Third, I include whether the company made a profit or a loss in the previous book year *(ResPrevBY)*. Bad performance in the previous year may be a motivation to change the compensation contract and to include more non-financial performance measures. If the company made a profit in the previous book year the value of this variable will be 1 and if the company made a loss the value will be 0. The values were found in the Orbis database, which was filtered for public listed companies in the Netherlands on the Euronext Amsterdam stock exchange.

Finally, I will include an industry-dummy (*Sector*). I already pointed out that regulation is a factor that influences the choice of performance measures. Since all companies are based in the Netherlands; it is fair to assume that companies that are alike will have to deal with the same regulation. That is why it can be assumed that companies who are active in the same sector will have to comply with equal regulation. The different sectors are determined following the Global Industry Classification Standard (GICS) that is used by Compustat. The GICS distinguishes 10 sectors, which are not all represented in this research. The 75 companies in our sample are divided over 9 sectors as presented in Table 1.

Table 1: Sector Distribution

GICS Code	Sector name	Frequency	Percentage
10	Energy	4	5,3 %
15	Materials	5	6,7 %
20	Industrials	18	24,0 %
25	Consumer Discretionary	9	12,0 %
30	Consumer Staples	8	10,7 %
35	Health Care	4	5,3 %
40	Financials	13	17,3 %
45	Information Technology	13	17,3 %
50	Telecommunication Services	1	1,3 %

Since the sector values can only be taken into account when using dummy variables the models will be slightly adjusted. Every sector will get a separate dummy and since sector 20 is the most frequent, that sector will come back in the constant. The ε represents the portion of the dependent variable, that is not explained by the other variables in the model. Taking that into account the models that will be used are the following:

$$UseNF = \beta_1 * Crisis + \beta_2 * NewCEO + \beta_3 * IntCEo + \beta_4 * Size + \beta_5 * ResPrevBY + \beta_6 * S10 + \beta_7 * S15 + \beta_8 * S25 + \beta_9 * S30 + \beta_{10} * S35 + \beta_{11} * S40 + \beta_{12} * S45 + \beta_{13} * S50 + \varepsilon \quad (1)$$

$$NumNF = \beta_1 * Crisis + \beta_2 * NewCEO + \beta_3 * IntCEo + \beta_4 * Size + \beta_5 * ResPrevBY + \beta_6 * S10 + \beta_7 * S15 + \beta_8 * S25 + \beta_9 * S30 + \beta_{10} * S35 + \beta_{11} * S40 + \beta_{12} * S45 + \beta_{13} * S50 + \varepsilon \quad (2)$$

$$PerNF = \beta_1 * Crisis + \beta_2 * NewCEO + \beta_3 * IntCEo + \beta_4 * Size + \beta_5 * ResPrevBY + \beta_6 * S10 + \beta_7 * S15 + \beta_8 * S25 + \beta_9 * S30 + \beta_{10} * S35 + \beta_{11} * S40 + \beta_{12} * S45 + \beta_{13} * S50 + \varepsilon \quad (3)$$

3.1. Descriptive Statistics

From all of the 75 companies six years have been investigated, so there is a total of 450 observations. As Table 2 shows, not all these observations can be used. Especially the number of non-financial performance criteria is most of the times not totally disclosed. Only in 201 of the 450 observations this was measureable. In over the 90% of all observations the percentage of non-financial performance measures used was disclosed.

Table 2: Overview of data completeness

Observations	*Number of Companies*
All	*450*
The use of financial and/or non-financial measures disclosed	*416*
The number of financial and/or non-financial measures used disclosed	*321*
The number of both financial and non-financial measures used disclosed	*195*
Only the number of financial measures used disclosed	*120*
Only the number of non-financial measures used disclosed	*6*
The percentage of both financial and non-financial measures used disclosed	*411*

Table 3 presents the descriptive statistics of the two samples which will be the basis of the most important regressions that will be conducted. The first sample consists of all companies that disclose their use of non-financial performance measures and the second sample consists of the observations of the companies who use non-financial in one of the examined years.

In the first sample the average number of non-financial performance measures is 1,19. When the companies that do not use non-financial measures at all are excluded the average number of non-financial measures grows to 1,71. This is in both cases lower than the average number of disclosed financial performance measures, which are respectively 2,08 and 2,23. The average percentage that the non-financial performance measures determine is 20,02% of the total annual bonus in the first sample. When only the companies that use non-financial measures during one of the examined year are taken into account the percentage is 25,59%.

In the complete sample, CEOs earned on average a fixed salary of € 578.433. On top of that they most of times earned a variable compensation. In 14.9% of the firm-years, there was no bonus payment. The bonus payment was on average € 415.198, which is 57,91% of the fixed salary. The average total assets, which are used to determine the company size, of the companies in the sample are € 12.933.000.000. In the second sample both the average salary, which is € 606.367, and the average bonus payment, which is € 433.367, are slightly higher. The bonus is 57,46% of the salary, which is in line with the first sample. When the companies that do not use non-financial measures are excluded, the average company size increases. The average total assets are then €15.167.000.000.

Table 3: Descriptive Statistics

	All observations in which the use of non-financial measures is disclosed					*Only companies that use non-financial measures*				
	N	*Minimum*	*Maximum*	*Mean*	*Std. Dev.*	*N*	*Minimum*	*Maximum*	*Mean*	*Std. Dev.*
CEO Salary	*402*	*79.500*	*2.005.000*	*578.433*	*346.286*	*331*	*79.500*	*2.005.000*	*606.367*	*354.455*
CEO Bonus	*402*	*0*	*3.750.000*	*415.198*	*551.843*	*331*	*0*	*3.750.000*	*433.367*	*580.723*
Bonus/Salary	*402*	*0*	*2,75*	*0,58*	*0,49*	*331*	*0*	*2,75*	*0,57*	*0,47*
*PerNF**	*397*	*0*	*0,75*	*0,21*	*0,19*	*326*	*0*	*0,75*	*0,26*	*0,18*
*NumNF**	*195*	*0*	*7*	*1,19*	*1,81*	*136*	*0*	*7*	*1,71*	*1,96*
*NumF**	*306*	*0*	*8*	*2,08*	*1,35*	*247*	*0*	*8*	*2,23*	*1,35*
NewCEO	*402*	*0*	*1*	*0,12*	*0,33*	*331*	*0*	*1*	*0,12*	*0,33*
IntCEO	*402*	*0*	*1*	*0,68*	*0,47*	*331*	*0*	*1*	*0,68*	*0,46*
ResPrevBY	*402*	*0*	*1*	*0,85*	*0,36*	*331*	*0*	*1*	*0,87*	*0,34*
*Total Assets***	*402*	*2,64*	*345.257*	*12.933*	*40.977.*	*331*	*4,28*	*345.257*	*15.167*	*44.815*

** Some companies disclose both the number as the percentage of non-financial measures they use. Other companies disclose only the percentage of non financial measures they use, while others only disclose the number of non-financial measures they use. That is why the number of observations for these variables varies.*

*** Total assets are written down in millions*

4. Results

4.1. Use of non-financials

Graph 1 shows that the use of non-financial performance measures increased since 2006. In that year 51,5% of the companies used non-financial measures. In 2011 the percentage increased to 78,9%. To prove the positive relation between the crisis and the use of non-financial measures I will run regression (1) on two different samples. First, I will run the regression on all firms that disclose information about the performance measures. Second, I will also run the regression on all firms that did not use non-financial performance measures before the crisis.

Graph 1

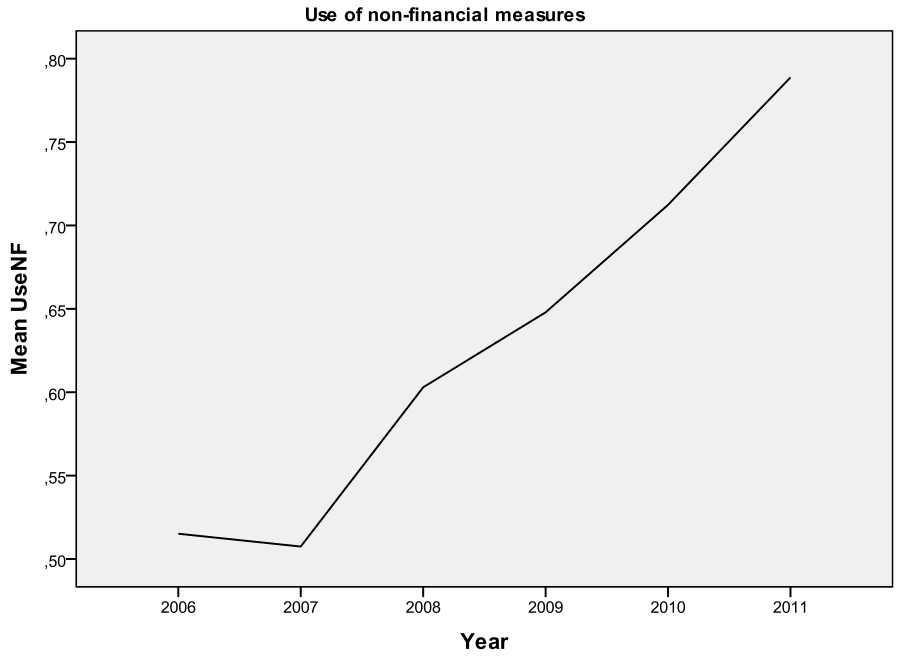


Table 4 shows the correlation between the variables in this model. In most cases there is small correlation and in a few cases there medium correlation.[1] This tells us that the risk of risk of multicollinearity is very low in this model. The only relation that stands out is the one between size and the use of non-financials.

The results of the regression are presented in Table 5. With respect to the full sample, the results show that *Crisis* is positive and significant (β_1= 0,947; t-value = 12,024) In other words, the

[1] There is small correlation when the correlation coefficient lies between the 0,10 and 0,29 (or between the -0,10 and -0,29). When the correlation is between the 0,30 and 0,49 (or between -0,30 and -0,49) there is medium correlation and when the correlation coefficients lie between the 0,50 and 1,00 (or between -0,50 and -1,00) there is large correlation. (Cohen, 1988)

Table 4: Correlations among the UseNF model

	UseNF	*Crisis*	*NewCEO*	*intCEO*	*S10*	*S15*	*S25*	*S30*	*S35*	*S40*	*S45*	*S50*	*Size*	*ResPBy*
UseNF	*1,00*													
Crisis	*0,17****	*1,00*												
NewCEO	*-0,05*	*0,09***	*1,00*											
intCEO	*0,01*	*-0,03*	*-0,09***	*1,00*										
S10	*0,01*	*-0,01*	*-0,03*	*-0,05*	*1,00*									
S15	*0,05*	*0,01*	*0,01*	*-0,08**	*-0,06*	*1,00*								
S25	*-0,18****	*-0,02*	*-0,06*	*0,01*	*-0,10***	*-0,10***	*1,00*							
S30	*-0,14****	*-0,00*	*0,02*	*0,06*	*-0,09***	*-0,09***	*-0,13****	*1,00*						
S35	*-0,14****	*-0,00*	*0,04*	*-0,22****	*-0,06*	*-0,06*	*-0,09***	*-0,08*	*1,00*					
S40	*0,14****	*0,02*	*0,02*	*-0,10***	*-0,11***	*-0,11***	*-0,17****	*-0,15*	*-0,11*	*1,00*				
S45	*-0,08**	*0,02*	*0,00*	*0,02*	*-0,11***	*-0,11***	*-0,17****	*-0,15*	*-0,10*	*-0,19*	*1,00*			
S50	*0,09***	*-0,01*	*0,02*	*-0,13****	*-0,03*	*-0,03*	*-0,05*	*-0,04*	*-0,03*	*-0,05*	*-0,05*	*1,00*		
Size	*0,33****	*0,06*	*0,02*	*0,00*	*0,18****	*0,24****	*-0,21*	*0,06*	*-0,24*	*0,18*	*-0,35*	*0,15*	*1,00*	
ResPBy	*0,15****	*-0,13****	*-0,08**	*-0,18****	*0,05*	*0,08**	*0,01*	*0,11*	*-0,25*	*-0,16*	*-0,06*	*0,5*	*0,20*	*1,00*

**** Significant at the 1 percent level (one-tail)*

*** Significant at the 5 percent level (one-tail)*

** Significant at the 10 percent level (one-tail)*

number of firms that includes non-financial performance measures in CEO contracts has increased during the crisis. The odds ratio shows that during the companies are 2.578 times more likely to use non-financial performance measures in the crisis. With respect to the control variables, I find that firm size (β_4= 0,640; t-value = 43,202) and a profit in the previous book year (β_5= 0,889; t-value 9,244) are positively and significantly related to the number of firms that use non-financial performance measures. The latter result is notable as it was expected that companies who suffered a loss would be more eager to adjust their compensation contracts.

Running the regression on the sample of companies that did not use non-financials before the crisis leads to similar results. Specifically, Crisis is also positively and significantly related to the number of firms that uses non-financial performance measures in CEO compensation contracts (β_1= 3,081; t-value = 34,150). When a company did not use non-financial performance measures before the crisis, they are over 20 times more likely to use these measures during a crisis.

Table 5: Coefficients

	All observations			*No NF before the crisis*		
	B	*Wald*	*Odds Ratio*	*B*	*Wald*	*Odds Ratio*
Crisis	,947***	14,076	2,578	3,081***	23,595	21,789
NewCEO	-,532	2,218	,588	-,778	1,897	,459
IntCEO	-,239	,776	,788	,321	,526	1,378
Size	,640***	15,677	1,896	,272	1,318	1,312
Result Previous Book Year	,889***	6,797	2,434	-,018	,002	,982
S Energy	-1,097**	4,102	,334	-,609	,552	,544
S Materials	-,918	2,534	,399	-,350	,167	,704
S Consumer Discretionary	-1,461***	13,046	,232	-1,071*	3,558	,343
S Consumer Staples	-1,739***	17,627	,176	-,815	2,045	,442
S Health Care	-1,175**	3,899	,309	-1,618*	3,025	,198
S Financials	-,012	,001	,988	,276	,212	1,318
S Information Technology	-,588	2,205	,556	-1,520**	5,574	,219
S Telecom. Services	18,950	,000	1,698E8			
Constant	-5,708***	13,661	,003	-5,159**	5,188	,006
N	416			225		
Cox & Snell R Square	0,210			0,273		
Nagelkerke R Square	0,287			0,379		

**** Significant at the 1 percent level (two-tailed)*

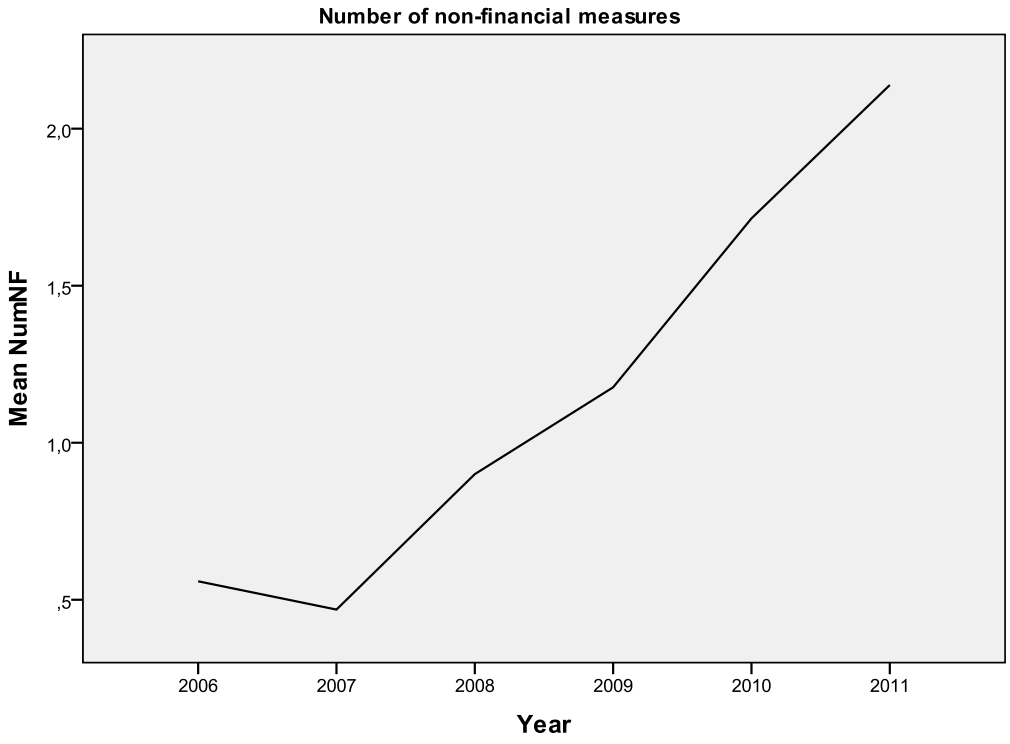
*** Significant at the 5 percent level (two-tailed)*

** Significant at the 10 percent level (two-tailed)*

4.2. Number of non-financials

Graph 2 shows that the number of non-financial performance measures used to evaluate a CEO increased during the crisis. Companies used on average 0,56 non-financial performance measure in 2006, but in 2011 the average already increased to 2,14 non-financial measures.

Graph 2



In this case I will run regression (2) on three different samples. First, I run the regression on all the firms that disclose the number of non-financial performance measures they use. Second, I will run the regression only on the companies that use non-financial measures in one of the examined years. Last, the regression is run only on the companies that use non-financial measures both before as after the crisis.

Table 6 shows the correlations among the variables in this model. In most cases there is small correlation and in a few cases there medium correlation. There are no strong relations between the individual relations themselves, so the risk of multicollinearity between the variables is low.

Table 6: Correlations among the NumNF model

	NumNF	*Crisis*	*NewCEO*	*intCEO*	*S10*	*S15*	*S25*	*S30*	*S35*	*S40*	*S45*	*S50*	*Size*	*ResPBy*
NumNF	*1,00*													
Crisis	*0,26****	*1,00*												
NewCEO	*0,05*	*0,13***	*1,00*											
intCEO	*-0,01*	*-0,10**	*-0,17****	*1,00*										
S10	*-0,09*	*-0,11**	*-0,13***	*-0,18****	*1,00*									
S15	*0,00*	*0,11**	*-0,14***	*-0,10**	*-0,05*	*1,00*								
S25	*-0,24****	*-0,12**	*-0,07*	*0,05*	*-0,09**	*-0,10**	*1,00*							
S30	*-0,14***	*0,01*	*0,01*	*0,09*	*-0,09*	*-0,09**	*-0,18****	*1,00*						
S35	*-0,14***	*-0,00*	*0,04*	*-0,13***	*-0,06*	*-0,05*	*-0,09**	*-0,09*	*1,00*					
S40	*0,22**	*0,08*	*0,17****	*0,05*	*-0,10**	*-0,11**	*-0,20****	*-0,19****	*-0,10**	*1,00*				
S45	*-0,08*	*0,06*	*0,07*	*-0,17****	*-0,10**	*-0,10**	*-0,19****	*-0,19****	*-0,10**	*-0,21****	*1,00*			
S50	*0,34****	*0,04*	*0,03*	*-0,14***	*-0,04*	*-0,04*	*-0,07*	*-0,07*	*-0,04*	*-0,08*	*-0,07*	*1,00*		
Size	*0,32****	*0,04*	*-0,11**	*0,14***	*0,04*	*0,17****	*-0,18****	*0,6*	*-0,33****	*0,16***	*-0,21****	*0,16***	*1,00*	
ResPBy	*0,08*	*-0,14***	*-0,25****	*0,22****	*0,03*	*0,10**	*-0,06*	*0,19****	*-0,29****	*-0,13***	*-0,11**	*0,07*	*0,33****	*1,00*

**** Significant at the 1 percent level (one-tail)*

*** Significant at the 5 percent level (one-tail)*

** Significant at the 10 percent level (one-tail)*

Table 7 presents the results of the regressions. On average companies use 0,853 more non-financial targets during the crisis than before (β_1= 0,853; t = 3,593). With respect of the control variables, I find that most sector and company size are significantly related to the number of non-financial measures used. It is notable that all sectors are negatively associated with the use of non-financial targets except the information technology and the telecommunication sector (β_6 = -1,381; t = -2,345, β_7 = -1,163 ; t = -2,086, β_8 = -1,450 ; t = -3,769, β_9 = -1,368 ; t = -3,621, β_{10} = -1,388 ; t = -2,196, β_{12} = 0,933 ; t = 2,410, β_{13} = 2,623 ; t = 3,530). Company size is positively related to the number of non-financial performance measures (β_4 = 0,225; t = 2,318), so the bigger the company, the more non-financial targets are used. An explanation for this could be the fact that bigger companies have more complex bonus schemes, and therefore use more different (non-financial) performance measures. Whether a CEO is internally hired or whether a company reported a profit or a loss in the previous book year are both not significantly related to the number of non-financial targets.

When adjusting the sample the results remain mostly the same. When running the regression on the sample with only companies in it that use non-financials in one of the examined years, *Crisis* is significantly en positively related to the number of non-financial measures used (β_1 = 1,459; t = 3,883). So in these companies the increase in non-financial measures is almost twice as big as in the basic sample. Regarding the control variables, the same factors are significant, except for a few sectors that were significantly related during the first test.

When running regression on the last sample, which exists of the companies that were already using non-financial performance measures before the crisis started , the result of Crisis is also significantly and positively related to the number of non-financial measures (β_1 = 0,833; t = 2,146). . The effects of the control variables are slightly different. The most notable difference is the fact that *NewCEO* is significant (β_2 = 1,048; t = 1,995). This is an indication that companies that already used non-financial measures before the crisis are more eager to adjust their compensation plan when appointing a new CEO. A possible explanation for this is that CEO contracts are determined for longer term, so when a new CEO is hired, it is possible for companies to adjust these plans.

Table 7: Coefficients (Dependent variable is NumNF)

	All observations	*Companies that use NF*	*Companies that use NF before and after crisis*
Crisis	*0,853****	*1,459****	*0,833***
	(3,593)	*(3,883)*	*(2,146)*
NewCEO	*-0,072*	*-0,327*	*1,048***
	(-0,229)	*(-0,763)*	*(1,995)*
IntCEO	*-0,157*	*0,203*	*-0,814*
	(-0,638)	*(0,545)*	*(-1,391)*
Size	*0,225***	*0,705***	*0,638*
	(2,318)	*(2,477)*	*(0,947)*
ResPrevBY	*0,141*	*0,731*	*-0,080*
	(0,428)	*(1,363)*	*(-0,065)*
Energy	*-1,381***	*0,379*	*-*
(S10)	*(-2,345)*	*(0,312)*	
Materials	*-1,163***	*-2,171***	*-*
(S15)	*(-2,086)*	*(-3,410)*	
Consumer Discretionary	*-1,450****	*-1,944***	*-3,284****
(S25)	*(-3,769)*	*(-2,550)*	*(-4,404)*
Consumer Staples	*-1,368****	*-1,339***	*-2,769****
(S30)	*(-3,621)*	*(-2,420)*	*(-3,780)*
Health Care	*-1,388***	*-2,187***	*-*
(S35)	*(-2,196)*	*(-2,146)*	
Financials	*-0,003*	*-0,176*	*-2,416****
(S40)	*(-0,009)*	*(-0,377)*	*(-2,991)*
Information Technology	*0,933***	*0,036*	*-*
(S45)	*(2,410)*	*(0,059)*	
Telecom. Services	*2,623****	*1,613**	*0,426*
(S50)	*(3,530)*	*(1,921)*	*(0,451)*
(Constant)	*-0,735*	*-5,792**	*-2,670*
	(-0,764)	*(-1,981)*	*(-0,413)*
N	*199*	*110*	*41*
R Square	*0,348*	*0,396*	*0,696*

**** Significant at the 1 percent level (two-tail)*

*** Significant at the 5 percent level (two-tail)*

** Significant at the 10 percent level (two-tail)*

4.3. Percentage of non-financials

To look at the percentage of the bonus that is determined by non-financial measures I will run regression (3) on the same three different samples as those presented at regression (2). First, the complete sample; second, only on the companies that use non-financial measures and last, only on the companies that already used non-financial measures before the crisis. As in the other samples the risk of multicollinearity is small. Table 8 shows in the case of most of the variables there is only small correlation.

Graph 3 shows that non-financial measures became more and more important for evaluating CEO performance. While in 2006 on average 14% of the bonus was determined by non-financial measures, in 2011 this percentage was doubled to 28%.

Graph 3

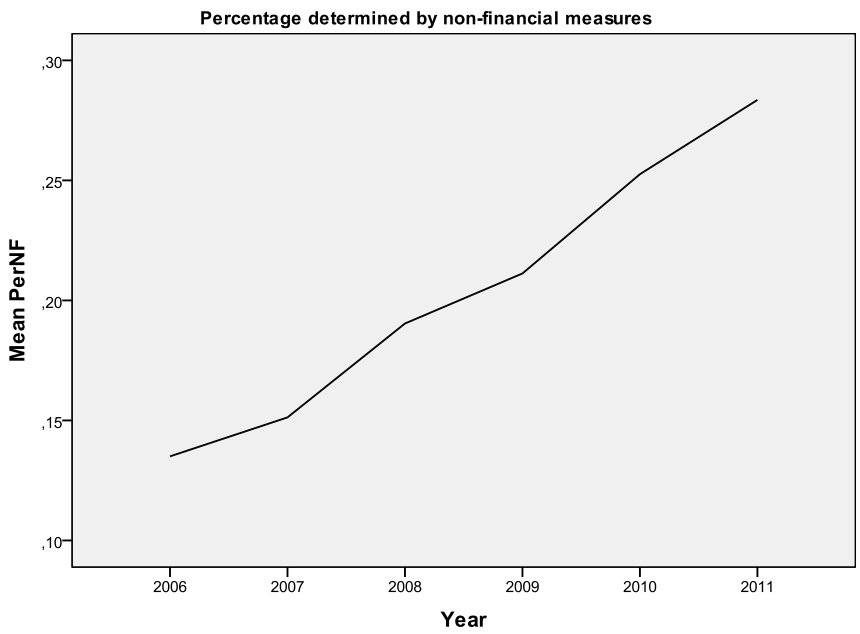


Table 9 shows that *Crisis* is positively and significantly related to the percentage of non-financial performance measures (β_1 = 0,089; t = 4,723). This indicates that the importance of non-financial performance measures increased during the crisis. On average the use of non-financial performance measures used during the crisis was 8,9% higher than before. Whether there is appointed a new CEO is not significantly related to the percentage of non-financial performance measures used.

When looking at the control variables, company size has a significant impact on the percentage of non-financial performance measures used in CEO contracts (β_4 = 0,043; t = 4,702). So the bigger the company the bigger the part of the CEO bonus that is determined by non-financial targets. There are also some sectors that could be significant. On 1% level this are the consumer discretionary and consumer staples (β_8 = -0,104; t = -,443, β_9 = -0,138; t = -4,375) and on a 5% level

Table 8: Correlations among the PerNF model

	PerNF	*Crisis*	*NewCEO*	*intCEO*	*S10*	*S15*	*S25*	*S30*	*S35*	*S40*	*S45*	*S50*	*Size*	*ResPBy*
PerNF	*1,00*													
Crisis	*0,21****	*1,00*												
NewCEO	*0,02*	*0,09***	*1,00*											
intCEO	*0,03*	*-0,04*	*-0,19****	*1,00*										
S10	*0,12****	*0,04*	*0,06*	*-0,05*	*1,00*									
S15	*0,01*	*0,00*	*-0,13****	*-0,08**	*-0,06*	*1,00*								
S25	*-0,18****	*-0,02*	*-0,07**	*0,00*	*-0,09***	*-0,10***	*1,00*							
S30	*-0,14****	*0,02*	*0,05*	*0,07**	*-0,08**	*-0,08***	*-0,13****	*1,00*						
S35	*-0,16****	*0,00*	*0,05*	*-0,23****	*-0,06*	*-0,06*	*-0,10***	*-0,08***	*1,00*					
S40	*0,15****	*0,01*	*0,13****	*-0,09***	*-0,10***	*-0,11***	*-0,18****	*-0,15****	*-0,11***	*1,00*				
S45	*-0,06*	*0,01*	*0,01*	*0,02*	*-0,10***	*-0,11***	*-0,17****	*-0,15****	*-0,11***	*-0,19****	*1,00*			
S50	*0,08*	*-0,01*	*0,02*	*-0,13*	*-0,03*	*-0,03*	*-0,05*	*-0,04*	*-0,03*	*-0,06*	*-0,05*	*1,00*		
Size	*0,34****	*0,02*	*-0,06*	*0,06*	*0,18****	*0,21****	*-0,22****	*0,06*	*-0,27****	*0,16****	*-0,27****	*0,13****	*1,00*	
ResPBy	*0,09***	*-0,15****	*-0,26****	*0,19****	*0,07**	*0,08**	*-0,00*	*0,11***	*-0,26****	*-0,16****	*-0,06*	*0,25****	*0,06*	*1,00*

**** Significant at the 1 percent level (one-tail)*

*** Significant at the 5 percent level (one-tail)*

** Significant at the 10 percent level (one-tail)*

also the materials sector and the health care sector are significantly related to the dependent variable (β_7 = -0,080; t = -1,967, β_{10} = -0,107; t = -2,400).

Running regression on the adjusted sample, with only the companies that used non-financial performance measures in one of the examined years, leads to more or less the same results. The crisis influences the use of non-financial measures a bit stronger in comparison with the first sample (β_1 = 0,110; t = 5,478). This seems logical because companies, who do not use non-financial performance measures, will bring the average percentage, used in bonus contracts, down.

For the last regression I ran with this model, the sample in which only the companies that used non-financial performance measure both before as after the crisis is used. While most results remained the same, there is one interesting point to mention. The influence of the crisis is still significant and positive (β_1 = 0,047; t = 2,229), but less than in the other models. This indirectly indicates that companies who did not use non-financial performance measures before the crisis increased the use on these measures more than companies who already used non-financial measures before the crisis.

4.4. New CEOs

When a CEO contract is constructed before the crisis started, they cannot always be adjusted. This will be easier when a new CEO is appointed. I will look whether companies start using more non-financial measures when their CEO is hired during the crisis. Therefore the variable *CEOCri* will be added to the models. This leads to the following empirical models:

$$UseNF = \beta_1 * Crisis + \beta_2 * NewCEO + \beta_3 * CEOCri + \beta_4 * IntCEo + \beta_5 * Size + \beta_6 * ResPrevBY + \beta_7 * S10 + \beta_8 * S15 + \beta_9 * S25 + \beta_{10} * S30 + \beta_{11} * S35 + \beta_{12} * S40 + \beta_{13} * S45 + \beta_{14} * S50 + \varepsilon$$

$$NumNF = \beta_1 * Crisis + \beta_2 * NewCEO + \beta_3 * CEOCri + \beta_4 * IntCEo + \beta_5 * Size + \beta_6 * ResPrevBY + \beta_7 * S10 + \beta_8 * S15 + \beta_9 * S25 + \beta_{10} * S30 + \beta_{11} * S35 + \beta_{12} * S40 + \beta_{13} * S45 + \beta_{14} * S50 + \varepsilon$$

$$PerNF = \beta_1 * Crisis + \beta_2 * NewCEO + \beta_3 * CEOCri + \beta_4 * IntCEo + \beta_5 * Size + \beta_6 * ResPrevBY + \beta_7 * S10 + \beta_8 * S15 + \beta_9 * S25 + \beta_{10} * S30 + \beta_{11} * S35 + \beta_{12} * S40 + \beta_{13} * S45 + \beta_{14} * S50 + \varepsilon$$

Table 9: Coefficients (dependent variable is PerNF)

	All observations	*Companies that use NF*	*Companies that use NF before and after crisis*
Crisis	*0,089****	*0,110****	*0,047***
	(4,723)	*(5,478)*	*(2,229)*
NewCEO	*-0,001*	*-0,021*	*0,032*
	(-0,022)	*(-0,772)*	*(1,078)*
IntCEO	*-0,001*	*0,005*	*0,001*
	(-0,053)	*(0,258)*	*(0,061)*
Size	*0,043****	*0,046****	*0,042****
	(4,702)	*(4,243)*	*(2,795)*
ResPrevBY	*0,025*	*0,021*	*-0,012*
	(0,987)	*(0,747)*	*(-0,324)*
Energy	*0,008*	*0,073*	*0,067*
(S10)	*(0,180)*	*(1,629)*	*(1,364)*
Materials	*-0,080***	*-0,097***	*-0,015*
(S15)	*(-1,967)*	*(-2,476)*	*(-0,347)*
Consumer Discretionary	*-0,104****	*-0,025*	*-0,051*
(S25)	*(-3,443)*	*(-0,711)*	*(-0,860)*
Consumer Staples	*-0,138****	*-0,109****	*-0,128****
(S30)	*(-4,375)*	*(-3,168)*	*(-2,773)*
Health Care	*-0,107***	*-0,093**	*-0,052*
(S35)	*(-2,400)*	*(-1,922)*	*(-0,834)*
Financials	*0,006*	*0,011*	*-0,016*
(S40)	*(0,204)*	*(0,387)*	*(-0,559)*
Information Technology	*-0,039*	*0,019*	*0,041*
(S45)	*(-1,362)*	*(0,601)*	*(1,330)*
Telecom. Services	*0,027*	*0,013*	*-0,026*
(S50)	*(0,358)*	*(0,187)*	*(-0,431)*
(Constant)	*-0,222***	*-0,253***	*-0,099*
	(-2,511)	*(-2,316)*	*(-0,629)*
N	*405*	*328*	*205*
R Square	*0,227*	*0,229*	*0,152*

**** Significant at the 1 percent level (two-tail)*

*** Significant at the 5 percent level (two-tail)*

** Significant at the 10 percent level (two-tail)*

The results of these regressions are shown in Table 10. The results of earlier test stay up, so Crisis has a significant and positive effect on the use of non-finacial measures (β_1 = 0,819; t = 12,024), the number of non-financial measures used (β_1 = 0,490; t = 1,954), and the percentage of the annual bonus determined by non-financial measures (β_1 = 0,072; t = 3,577). Also company size and some sectors are still significant. Whether the CEO is hired during the crisis is significantly related with both the number of non-financial measures (β_3 = 1,166; t = 3,611) and the percentage of the bonus determined by non-financial measures (β_3 = 0,069; t = 2,494). Notable is that by adding *CEOCri*, *NewCEO* is a negative and significantly related to the number of non-financial measures used in compensation contracts (β_2 = -0,747; t = -2,077). So this indicates that hiring a new CEO has a negative impact on the number of non-financial measures used, but when it happens during the crisis, it has a positive impact on this number.

For a second test I adjusted the sample by removing the companies that didn't appoint a new CEO.With this sample it is not necessary to control for the variables *NewCEO* and *CEOCri* anymore. Table 11 shows that crisis is still significantly related to both the use of non-financial measures (β_1 = 1,423; t = 9,001), the number of non-financial measures (β_1 = 1,246; t = 3,565) and the percentage of non-financial measures used in a compensation contract (β_1 = 0,115; t = 4,561). With respect to the control variables, the most striking conclusion is the fact that, while using only the companies that appointed a new CEO, the result of the previous book year is, on a significance level of 10%, positively associated with the use of non-financial measures (β_4 = 0,926; t = 1,775). This indicates that companies who had bad results and appointed a new CEO are more eager to use more non-financial performance measures.

Finally I performed some test in which I only took the companies who appointed their new CEO before the crisis (so in the years 2006 and 2007). Since the samples were not really big, with 66 observations in the *UseNF* model, 33 observations in the *NumNF* model and 63 in the *PerNF*, it is hard to draw any conclusions from these tests. In the *NumNF* model there are only some significant results regarding some sectors. In Table 12 is shown that the use of non-financial measures (β_1 = 2,100; t = 3,302) and the percentage of non-financial performance measures used (β_1 = 0,090; t = 2,061), are still significant and positively related to the crisis variable. So companies who appointed a CEO before the crisis started are still increasing the use of non-financial measures during the crisis. Some sector variables are also significant, but the other control variables do not give significant results.

Table 10: Coefficients (CEOCri included)

		UseNF	*NumNF*	*PerNF*
		(Logistic Regression)		
Crisis		*0,819****	*0,490**	*0,072****
			(1,954)	*(3,577)*
NewCEO		*-0,853**	*-0,747***	*-0,042*
			(-2,077)	*(-1,355)*
CEOCri		*0,541*	*1,166****	*0,069***
			(3,611)	*(2,494)*
IntCEO		*-0,181*	*-0,041*	*0,006*
			(-0,170)	*(0,311)*
Size		*0,639****	*0,265****	*0,044****
			(2,792)	*(4,890)*
ResPrevBY		*0,980****	*0,258*	*0,036*
			(0,803)	*(1,397)*
Energy		*-1,139***	*-1,224***	*-0,003*
(S10)			*(-2,139)*	*(-0,071)*
Materials		*-0,810*	*-0,837*	*-0,068**
(S15)			*(-1,528)*	*(-1,652)*
Consumer Discretionary		*-1,444****	*-1,424****	*-0,101****
(S25)			*(-3,821)*	*(-3,381)*
Consumer Staples		*-1,787****	*-1,444****	*-0,145****
(S30)			*(-3,937)*	*(-4,597)*
Health Care		*-1,151**	*-1,174**	*-0,102***
(S35)			*(-1,908)*	*(-2,303)*
Financials		*-0,059*	*-0,169*	*-0,002*
(S40)			*(-0,473)*	*(-0,054)*
Information Technology		*-0,590*	*-0,923***	*-0,040*
(S45)			*(-2,460)*	*(-1,376)*
Telecom. Services		*18,975*	*2,757****	*0,031*
(S50)			*(3,823)*	*(0,416)*
(Constant)		*-5,797****	*-1,226*	*-0,246****
			(-1,302)	*(-2,790)*
N		*416*	*200*	*405*
R Square	*Cox & Snell*	*0,213*	*0,391*	*0,239*
	Nagelkerke	*0,292*		

**** Significant at the 1 percent level (two-tail)*

*** Significant at the 5 percent level (two-tail)*

** Significant at the 10 percent level (two-tail)*

Table 11: Coefficients (Only Companies with new CEOs)

		UseNF	*NumNF*	*PerNF*
		(Logistic Regression)		
Crisis		*1,423****	*1,246****	*0,115****
			(3,565)	*(4,561)*
IntCEO		*0,807**	*-0,315*	*0,012*
			(-0,702)	*(0,463)*
Size		*0,842****	*0,147*	*0,036****
			(1,103)	*(3,273)*
ResPrevBY		*0,653*	*0,926**	*0,055*
			(1,775)	*(1,518)*
Energy		*-0,423*	-	*0,075*
(S10)				*(1,339)*
Materials		*-1,271*	*-2,744****	*-0,146*
(S15)			*(-2,807)*	*(-2,930)*
Consumer Discretionary		*0,212*	*-1,623****	*-0,060*
(S25)			*(-2,472)*	*(-1,150)*
Consumer Staples		*-2,308****	*-2,016****	*-0,180****
(S30)			*(-3,576)*	*(4,375)*
Health Care		*-2,259***	*-1,573***	*-0,178****
(S35)			*(-2,148)*	*(3,156)*
Financials		*0,645*	*0,069*	*-0,007*
(S40)			*(0,130)*	*(-0,190)*
Information Technology		*-0,616*	*-0,966**	*-0,082***
(S45)			*(-1,864)*	*(-2,000)*
Telecom. Services		*19,474*	*2,113***	*-0,004*
(S50)			*(2,476)*	*(-0,054)*
(Constant)		*-8,495****	*-0,492*	*-0,168*
			(-0,390)	*(-1,526)*
N		*240*	*105*	*236*
R Square	*Cox & Snell*	*0,314*	*0,440*	*0,324*
	Nagelkerke	*0,438*		

**** Significant at the 1 percent level (two-tail)*

*** Significant at the 5 percent level (two-tail)*

** Significant at the 10 percent level (two-tail)*

Table 12: Coefficients (Only Companies with new CEOs before the crisis)

		UseNF	***NumNF***	***PerNF***
		(Logistic Regression)		
Crisis		*2,100***	*0,920*	*0,090***
			(1,491)	*(2,061)*
IntCEO		*0,389*	*-0,286*	*-0,015*
			(-0,336)	*(-0,271)*
Size		*-0,144*	*0,055*	*0,008*
			(0,242)	*(0,427)*
ResPrevBY		*0,855*	*0,390*	*-0,012*
			(0,403)	*(-0,135)*
Energy		*-*	*-*	*-*
(S10)				
Materials		*-1,903*	*-3,181***	*-0,373****
(S15)			*(2,282)*	*(-5,467)*
Consumer Discretionary		*-*	*-*	*-*
(S25)				
Consumer Staples		*-24,225*	*-3,018****	*-0,548****
(S30)			*(3,120)*	*(-6,692)*
Health Care		*-4,272****	*-2,776***	*-0,509****
(S35)			*(-2,630)*	*(-6,245)*
Financials		*-1,143*	*-0,140*	*-0,211****
(S40)			*(-0,155)*	*(-2,840)*
Information Technology		*18,875*	*-*	*0,007*
(S45)				*(0,080)*
Telecom. Services		*-*	*-*	*-*
(S50)				
(Constant)		*1,579*	*1,739*	*0,434***
			(0,828)	*(2,395)*
N		*66*	*33*	*63*
R Square	*Cox & Snell*	*0,461*	*0,542*	*0,670*
	Nagelkerke	*0,626*		

**** Significant at the 1 percent level (two-tail)*

*** Significant at the 5 percent level (two-tail)*

** Significant at the 10 percent level (two-tail)*

5. Conclusions

In this study, I investigate whether the crisis has increased the use of non-financial performance measures in CEO bonus contracts. I use data from Dutch listed companies from 2006 to 2011 to investigate my research question. The results are as follows. First, the results provide evidence for the fact that companies use more non-financial performance measures since the start of the financial crisis. They show that more companies are using non-financial performance measures. Especially companies who did not use non-financial performance measures before the crisis, started to use non-financial measures during the crisis. Second, since the crisis started, the number of non-financial performance measures used by companies increased. Third, companies increased the percentage of the annual bonus determined by non-financial measures during the crisis. Fourth, the results show that CEOs who are appointed after 2007 have more non-financial performance targets in their contracts. The percentage of the annual bonus that is determined by the non-financial targets is also higher when the CEO is appointed during the crisis.

All these results provide evidence for the fact that companies adjust their compensation contracts during difficult economic times. They tend to increase their focus on non-financial performance measures. This is in line with the prediction that due to the noise in the financial performance measures companies are going to use more non-financial performance measures.

A limitation of this research is that not all the possible variables that could influence the choice of performance measures are taken into account. Variables like the characteristics of the CEO (CEO power, CEO reputation, CEO Ownership (Davila & Venkatachalam, 2004)), organizational strategy (Ittner, Larcker, & Rajan, 1997), and the characteristics of the remuneration committee could have an influence on the choice of performance measures. Another limitation of this research is the fact that the companies in the sample are all Dutch. It could be that due to regulation or cultural issues, or other circumstances the results cannot be generalized for all international companies.

Future research can focus on whether companies that used non-financial performance measures during the crisis perform better during the crisis than companies who did not implement these measures. Another possibility is to look whether companies tend to decrease the use of non-financial performance measures when the crisis is over. Last, there can be looked at whether the increase of the use of non-financial performance measures is perceived as positive by the market.

6. Literature List

Aldamen, H., Duncan, K., Kelly, S., & McNamara, R. (2011). *Performance of Family Firms During the Global Financial Crisis: Does Governance Matter?*(Working Paper), Retrieved june 27, 2012, from http://ssrn.com/abstract=1976789 .

Almunia, M., Bénétrix, A. S., Eichengreen, B., O'Rourke, K. H., & Rua, G. (2010). *From Great Depression to Great Credit Crisis: Similarities, Differences and Lessons*(NBER Working Paper 15224), Retrieved june 12, 2012, from http://www.nber.org/papers/w15524.

Baker, G., Gibbons, R., & Murphy, K. J. (1994). Subjective Performance Measures in Optimal Incentive Contracts. *The Quarterly Journal of Economics, 109*(4), 1125-1156.

Banker, R. D., & Datar, S. M. (1989). Sensitivity, Precision, and Linear Aggregation of Signals for Performance Evaluation. *Journal of Accounting Research, 27*(1), 21-39.

Banker, R. D., Potter, G., & Srinivasan, D. (2000). An Emperical Investigation of an Incentive Plan that Includes Nonfinancial Performance Measures. *The Accounting Review, 75*(1), 65-92.

Beatty, R. P., & Zajac, E. J. (1994). Top management incentives, monitoring, and risk sharing: A study of executive compensation, ownership, and board structure in initial public offerings. *Administrative Science Quarterly, 39*, 313-335.

Bryan, S., Hwang, L., & Lilien, S. (2000). CEO Stock-Based Compensation: An Empirical Analysis of Incentive-Intensity, Relative Mix, and Economic Determinants. *The Journal of Business, 73*(4), 661-693.

Cohen, J. W. (1988). In *Statistical power analysis for the behavioral sciences* (2nd ed., pp. 79-81). Hillsdale, NJ: Lawrence Erlbaum Associates.

Datar, S., Kulp, S. C., & Lambert, R. A. (2001). Balancing Performance Measures. *Journal of Accounting Research, 39*(1), 75-92.

Davila, A., & Venkatachalam, M. (2004). The Relevance of Non-financial Performance Measures for CEO Compensation: Evidence from the Airline Industry. *Review of Accounting Studies, 9*, 443-464.

Eccles, R. G., & Mavrinac, S. C. (1995). Improving the Corporate Disclosure Process. *Sloan Management Review, 36*(4), 11-25.

Eccles, R., & Mavrinac, S. (1995). Improving the Corporate Disclosure Process. *Sloan Management Review, 36*, 11-25.

Fahlenbrach, R., & Stulz, R. M. (2011). Bank CEO Incentives and the Credit Crisis. *Journal of Financial Economics, 99*, 11-26.

Feltham, G. A., & Xie, J. (1994). Performance Measure Congruity and Diversity in Multi-Task Principal/Agent Relations. *The Accounting Review, 69*(3), 429-453.

Ghosh, D., & Lusch, R. F. (2000). Outcome effect, controllability and performance evaluation of managers: Some field evidence from multi-outlet businesses . *Accounting, Organizations and Society, 25*(4-5), 411-425.

Govindarajan, V., & Gupta, A. (1985). Linking control systems to business strategy: Impact on performance. *Accounting, Organizations and Society, 10*(1), 51-66.

Grossman, S. J., & Hart, O. D. (1983, January). An Analysis of the Principal-Agent Problem. *Econometrica, 51*(1), 7-45.

Healy, P. (1985). The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics, 7*, 85-107.

Höppe, F., & Moers, F. (2011). The Choice of Different Types of Subjectivity in CEO Annual Bonus Contracts. *The Accounting Review, 86*(6), 2032-2046.

Hoque, Z., & James, W. (2000). Linking Balanced Scorecard Measures to Size and Market Factors: Impact on Organizational Performance. *Journal of Management Accounting Research, 12*, 1-17.

Ibrahim, S., & Lloyd, C. (2011). The association between non-financial performance measures in executive compensation contracts and earnings management. *Journal of Accounting and Public Policy, 30*, 256-274.

Ittner, C. D., Larcker, D. F., & Meyer, M. W. (2003). Subjectivity and the Weighting of Performance Measures: Evidence from a Balanced Scorecard. *The Accounting Review, 78*(3), 725-758.

Ittner, C. D., Larcker, D. F., & Rajan, M. V. (1997). The Choice of Performance Measures in Annual Bonus Contracts. *72(2)*, 231-255.

Kaplan, R. S., & Norton, D. P. (1996). *The balanced scorecard: translating strategy into action.* Boston, MA: Harvard Business School Press.

Matsunaga, S. R. (1995). The Effects of Financial Reporting Costs on the Use of Employee Stock Options. *The Accounting Review, 70*(1), 1-26.

Miller, D., & Toulouse, J.-M. (1986). Chief Executive Personality and Corporate Strategy and Structure in Small Firms. *Management Science, 32*(11), 1389-1409.

Moers, F. (2005). Discretion and Bias in Performance Evaluation: The Impact of Diversity and Subjectivity. *Accounting, Organizations and Society, 30*(1), 67-80.

Murphy, K. J. (1999). Executive Compensation. *Handbook of Labor Economics, 3*, 2485-2563.

Opler, T. C., & Titman, S. (1994). Financial Distress and Corporate Performance. *The Journal of Finance, 49*(3), 1015 - 1040.

Prendergast, C., & Topel, R. (1996). Favortism in Organizations. *The Journal of Political Economy, 104*(5), 958-978.

Said, A. A., HassabElnaby, H. R., & Wier, B. (2003). An Empirical Investigation of the Performance Consequences of Nonfinancial Measures. *Journal of management accounting research, 15*, 193-223.

Salter, M. S. (1973). Tailor Incentive Compensation to Strategy. *Harvard Business Review, 49*(2), 94-102.

Shiller, R. J. (2008). *The Subprime Solution.* Perseus Books LLC.

Taylor, J. B. (2008, November). The Financial Crisis and the Policy Responses: An Emperical Analysis of What Went Wrong. *Lecture*.

Watts, R., & Zimmerman, G. (1986). *Positive Accounting Theory.* Prentice Hall.

Yermack, D. (1995). Do corporations award CEO stock options effectively? *Journal of Financial Economic, 39*, 237-269.

Zajac, E. J., & Westphal, J. D. (1995, June). Accounting for the Explanations of CEO Compensation: Substance and Symbolism. *Administrative Science Quarterly, 40*(2), 283-308.