The (relative) use of different performance measures in bonus contract; an investigation of Banks in the Netherlands.

S. van Dongen

Abstract: This study is about the target difficulty of bank executives based on Indjejikian and Nanda (2002). I provide evidence that executives' target bonus, for a sample of 25 banks in the Netherlands, is negatively associated with noise in accounting measurement and positively associated with both the growth opportunities of the firm and the decision-making authority of the executives.

Additional analyses describe that the fixed and variable remuneration have declined over the years 2005 until 2010, a possible explanation can be the financial crisis that hit the Netherlands in the year 2008. However, from 2009 to 2010 these payments have increased. The likelihood that an executive reaches his target in the current year is also investigated. This chance has decreased over time, but increased after 2008. I find large likelihoods in the years 2005 until 2007, above 90 percent for any target, suggesting a low target difficulty.

Furthermore, I compare the actual and target bonuses to investigate the relation between performance and bonuses. I find that both the target and the abnormal target bonuses are not independent on their lagged target bonuses. Meaning that the firms do not fully adjust performance standards to reflect executives past performance, which is contradictory to my expectations.

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1. Introduction

This study examines target difficulty for objectives set for executive bank managers. I find that targets are set so that they can be achieved relatively easily. They are also set inefficiently as the likelihood of achieving current targets is associated with their achievement in the next period. I also show that bank managers' fixed pay increases after the financial crisis as the bonuses payment component disappears during the years 2008 and 2009. However in 2010 banks pay higher salaries and a higher bonus. Hence, the current total income of bank managers is on average higher than what it was during the financial crisis. The evidence suggests that there is some merit to the public outrage over the salary practices in publics firms.

Recently the public outcry over bonus has revived. The public outrage surfaced when the Dutch company ING awarded bonuses to their executives ranging from €0.75 million to €1.25 million, while the bank was bailed out with billions of Euros by the Dutch Government (Financieele Dagblad, March 2011). Despite that these payments have been publicly qualified as "selfish" and "greedy", the supervisory board did not seem to anticipate such opinions to be relevant in that they deemed it necessary to design a contract that would pay their bank managers for delivered performance. These managers indeed did deliver performance in that they navigated the company from a €1 billion loss to a €3 billion profit (NRC, 1 April 2011). This large increase in the company's profitability, seems to justify the bonus payments to the executives. So, why do we have this debate about the bonuses of companies like ING?

Despite this public disgust about bonuses in the Netherlands, firms must find it beneficial for them to write these performance-based contracts. According to these contract managers are eligible to a bonuses or variable pay conditional on their performance (Towers Perrin[1], 2005). A typical contract comprises a fixed salary and a performance-based payout (Murphy, 2001). The idea of variable pay is that managers who do well are motivated to stay

[1] Towers Perrin is a professional organization, that delivers services to other companies with respect to people management, risk management and financial management.

with the firm and to work hard (Bouwens en Van Lent, 2006). In addition it is asserted that performance-based contracts align management objectives with those of the firm as the conditional pay-out entices these managers interest to improve the financial performance of the company (Jensen and Meckling, 1976). Indeed it is argued that bonuses can serve as a motivator for executives to be more productive (Holthausen et al, 1995b), and often represents the main component of incentive pay for mid-level executives (Indjejikian and Nanda, 2002).

While bonuses may help to motivate manager to work harder and to stay in the firm, the literature has identified potential problems associated with the use of these incentive plans. One of such a problem can be budget ratcheting, the phenomenon where bonus plans set next years' targets are based on current years' information (Weitzman, 1980). In the case of target ratcheting, annual bonus plans may incentivize executives to misrepresent their reported accounting performance (Leone and Rock, 2002). Bonuses are based on the achievement of a particular level of performance. This gives managers the incentive to reach or to go beyond that level. However, as next-period targets are often based on last periods' performance, managers know that they will be expected to at least meet the current level of performance for next year. This may prompt them to hold back their potential performance this year, to enhance their likelihood of achieving their next year target. To achieve this they may mute their effort (Bouwens and Kroos, 2011; Milgrom and Roberts, 1992) and/ or manage earnings (Leone and Rock, 2002).

It seems to be the case that public firms have a hard time in explaining why bonus are paid. The underlying targets and measures are more or less concealed so that the public does learn that a bonus has been paid, while the cannot gauge what the underlying achievement of each particular managers or executive is. Firms argue that they cannot disclose the information to such a level of detail as the disclosure of measures and targets would give away to much information to the firms competition (Indjejikian and Nanda, 2002). But if performance measures were known, the public could understand the bonuses of executives (Financieele Dagblad, 30 October 2007).

This research studies the use of performance-based contracts of Banks in the Netherlands. I am particularly interested in target difficulty, in other words: how challenging are the targets set for these managers? I will try to investigate this by using the following research question: to what extent do performance-based contracts challenge bank managers to improve performance?

This study will be based upon former research done by Indjejikian and Nanda (2002). They studied the executive target bonuses and what they imply about the performance standards. First, I will examine what the determinants of target bonuses are. As determinants are taken measurement noise, growth opportunities and decision-making authority of executives according to Indjejikian and Nanda (2002). I find that the measurement noise is negatively related to the executives' target bonus, the growth opportunities of the firm are positively related to the executives' target bonus and the executives' decision-making authority is also positively related to the executives target bonus for the logarithm of sales, but not for the variance of the stock return. These results are generally consistent with the predictions, only the logarithm of the variance of the stock return is not statistically significant.

Secondly, the executives actual bonus is compared with their target bonuses over two consecutive years to investigate whether the executives' performance standards include past performance (Indjejikian and Nanda, 2002). In addition to this research I will investigate the likelihood of reaching a target in each independent year and the growth of the fixed salary and total variable remuneration. I find that, under all the conditions, the likelihood that an executive reaches his target is dependent on his past performance, which is not consistent with the expectations. These results suggest that firms do not fully adjust their performance targets to reflect executives' past performance, i.e. targests are updated inefficiently.

Furthermore, Indjejikian and Nanda expand the second analyses to examine whether the executives' abnormal (i.e. unexpected) bonuses are serially uncorrelated with their abnormal bonus last year. I find that the current executives' abnormal bonuses are serially correlated to their abnormal bonus last year, which is contradictory to my expectations and therefore confirms the findings in the second analyses.

Finally, I conduct a sensitivity analyses to test for the extent to which discretionary of subjective executive bonuses and performance smoothing are related to the exectuives' abnormal bonuses, according to Indjejikian and Nanda (2002). Overall, I find that the results from the analyses of the tested hypotheses, are robust for both performance smoothing and the individual performance measures. Although the performance smoothing and individual performance measures are statistically significant related to the executives' abnormal bonuses in most cases, the relationship between the abnormal bonus and the lagged abnormal bonus remains positively significant in all situations.

Studying the determinants of performance measures of executives and in doing so, determine the difficulty of beating performance targets, is relevant because it will contribute to the existing literature. It is the first research in the content of Indjejikian and Nanda (2002) with regard to Banks in the Netherlands. Secondly, I will additionally analyze the performance targets under different conditions, so more knowledge is gained about the use of these targets. Thirdly, performance measures or standards are an important key component of management control systems and this research will try to determine the (relative) use of these performance measures in bonus contracts (Indjejikian and Nanda, 2002). This will provide additional information about the content of incentive contracts and it will help the monitoring of bonuses paid (can bonuses be justified in respect of the actual performance achieved?). Furthermore, more knowledge about the performance measures of bonus contracts, might provide new insights in the ongoing public debate.

The remainder of this thesis is structured as follows: section 2 reviews the literature on target bonuses and presents the hypotheses. Section 3 provides information about the data and the research method. Section 4 presents the results and section 5 discusses the findings and concludes.

2. Theoretical perspectives and hypotheses

Murphy (2001) discussed that an executive bonus plan consist of several components. The basic components of this incentive plan are the performance measures, performance standards and the relation between pay and performance. Murphy further describes that executives have a minimal and maximum bonus which will be paid out according to the reached targets. Between the minimum and maximum bonus, a target bonus exists[2]. A target bonus is a pre-specified bonus, that will be earned by the executives if (a set of) pre-specified targets are met. These targets are based on performance standards. This study focuses on target bonuses rather than actual bonuses, because target bonuses reflect the firms ex-ante targets or incentives to optimally motivate executives and therefore are not affected by ex-post events (Indjejikian and Nanda, 2002).

To determine whether executives meet their targets and how executives are able to meet their target over constructive years, this research uses the studies conducted by Indjejikian and Nanda (2002). They propose a benchmark against which target difficulty can be evaluated. This benchmark is based on economic factors identified in the extant literature. By examining these economic determinants of target bonuses, it can be established whether firms design target bonuses to motivate their executives optimally. This focus on the executives' target bonuses rather than their actual bonuses, will reflect the firms ex ante incentive design decision to optimally motivate executives and can therefore create firm value (Indjejikian and Nanda, 2002). Based on the agency theory I will discuss three economic determinants of targets: noise, firm growth and decision authority. My enquiry then proceeds with the issue of whether or not targets are set efficiently.

Noise, firm growth and decision authority.

Holmstrom (1979) and Lambert and Larcker (1987) suggest that measurement noise affects the performance measures of target bonuses. The reason is that noise in the measure makes it difficult to set exact targets as its achievement may be due to luck, while well directed effort may be kept insufficiently recorded. The risk of unrecorded effort renders the costs of performance based pay very high. This is because noise increases the likelihood for the manager that his achievements are under rewarded. To compensate for this risk the firm

[2] This is taken from the figure of Murphy's typical annual bonus plan (included in appendix A).

can only use targets if they are willing to pay a risk premium to their managers. At some point these costs outweigh the benefits so that the firm will be better off to refrain from performance-based pay altogether. Hence at high noise levels firms will refrain from using targets and performance-based pay (Holthausen et al., 1995a; Bushman et al., 1996; Murphy, 1999). Therefore, it is expected that target bonuses are negatively associated with measurement noise in accounting based metrics.

H1a: *"The use target-based bonuses are negatively associated with measurement noise in the firm's performance metrics."* (Indjejikian and Nanda, 2002)

Smith and Watts (1992) and Graver and Graver (1993) suggest that firms that have greater investment opportunities, will reward their executives with higher bonuses. Higher bonuses will provide more incentives for executives to be more productive and in a growing market it will be less difficult to reach the targets. Therefore it is expected that target bonuses are positively associated with the firm's growth opportunities.

H1b: *"The use target-based bonuses are positively associated with the firm's growth opportunities."* (Indjejikian and Nanda, 2002)

Prendergast (2001) and Nagar (2002) suggest that executives who exercise greater decision-making authority will be provided with more incentive pay than other executives that do not exercise this decision-making authority. The idea is that firms can only increase decisions authority to their managers if these managers' decisions are aligned (Jensen and Meckling, 1992). One way to achieve alignment is through incentive contracts that make it beneficial to managers to increase firm value. Performance-based contracts may enhance this alignment between the executives' interests and the shareholders' interests. Therefore it is expected that target bonuses are positively associated with the extent of the executive's decision- making authority.

H1c: *"An executive's target bonus is positively associated with the level of decision-making authority"* (Indjejikian and Nanda, 2002)

Efficient targets

Secondly, Indjejikian and Nanda (2002) focus on the probability that the executive achieves his performance standard, given that he did (or did not) achieve this standard in the prior year. They propose that, since targets should reflect all available information, the likelihood of achieving the next-period target should be independent of whether the current target is achieved. Indjejikian and Nanda (2002) further argue that the likelihood of achieving a next-period target should not be related with the incidence that they meet their target in the current year. The idea is that the firm should only pay for unexpected good performance, not for performance they have already shown to be able to achieve. The latter becomes the bottom-line performance. Hence, if an executive meets a personal target in year t-1, his bonus in year t should not include the achievement of the target in year t-1.

H2: *"The probability that an executive receives a bonus greater than or equal to his target bonus is independent of whether, in prior period, the executive received a bonus that was greater than or less than his target bonus"* (Indjejikian and Nanda, 2002)

Furthermore, Indjejikian and Nanda (2002) focus on the magnitude by which the executive's performance exceeds his performance standard. The idea is that a target is set such that it exactly equals the expected outcome. In the event that the target would be beaten (undercut) in any systematic way, target updating would be inefficient (too easy or too difficult). An abnormal bonus would exist if the target is exceeded systematically. They propose that if the executive's performance standard fully reflects the information in his past performance (which is expected), abnormal performance is expected to be serially uncorrelated.

H3: *"Executives' abnormal bonuses are serially uncorrelated"* (Indjejikian and Nanda, 2002)

The second and third hypotheses are joint hypotheses and will together address whether the target bonus of the current year (t) will not be dependent on the bonus target from last year (t-1).

3. Data and research method

In this section I will discuss the data and Banks that have been used for this research and the methods to investigate the data. Firstly, the sample of Banks and remuneration data included are discussed. Secondly, the research method is described along with the variables that are used for the analyses.

3.1 Data

The sample contains company results and executive remuneration amounts of Banks in the Netherlands for the years 2005 to 2010, following Bouwens and Kroos (2011). Company results were collected from information made public by the firm. My main data source is the annual report. My data includes firm results (e.g. assets and depreciation). I also calculate or use specific ratios to conduct my analyses, e.g. earnings per share (EPS) and the market-to-book ratio (MTB). Executive remuneration data typically consists of information on the fixed salary and the total variable remuneration[3]. While most financial information is collected from the annual reports of the Banks included in this study, I also collected data from the database DATASTREAM. The Banks in the Netherlands that are included in the following study are reproduced in table 1.

Table 1: The Banks established in the Netherlands and that are included in this research.

ABN AMRO	Credit Europe Bank	Rabobank
AEGON	Delta Lloyd	Robeco
Allianz	Fortis Bank	SNS Bank
Argenta	Friesland Bank	The Economy Bank
ASN Bank	Hollandse Bank Unie (DB)	The Royal Bank of Scotland
ASR Bank	ING Groep	Triodos Bank
Bank of Scotland	InterBank (CA)	Van Lanschot Bankiers
BinckBank	Kas Bank	
Centraal Beheer Achmea	NIBC Direct	

[3] All data that has been included are stated in appendix C.

I also had to remove banks from my sample because their reports provided too little remuneration data (12) or because they are part of a parent firm (15). I provide some more information on these firms in appendix C. Data for these Banks was collected for the years 2005 until 2010, as stated above, but because not all annual reports already have been released for 2010 and some cannot be accessed, not all years are included for each bank. This is stated in table 2.

Table 2: Number of banks that are included and excluded.

Number of Banks in the Netherlands originally included from 2005 until 2010:	52
- Decreased with Banks that did not report remuneration data	12[4]
- Decreased with Banks that are a part of other Banks (the parent company)	15[5]
Number of Banks in the Netherlands included from 2005 until 2010:	25

Remuneration data for the Banks was collected for individual executives, i.e. the salary, targets, variable compensation and other data are measured for individual executives. For the remaining 25 Banks I collect a total of 639 individual remuneration year observations for my analyses. The remuneration data mainly exists of the short-term variable remuneration of executives. The main reason for me to focus on short term remuneration is that the long term variable remuneration is, in most cases, conditional upon future performance which cannot be determined. Remuneration reports provide little information of whether these future targets have been achieved and what payments/wealth increases are associated with these long-term achievements. When the full variable remuneration targets are given I use the total remuneration to make my calculations.

The company financials are collected through the annual reports of the Banks or DATASTREAM, a database that contains important financial data.

[4] In appendix D is stated which companies are included in this selection.
[5] In appendix D is stated which companies are included in this selection.

3.2 Research method

The research method will be described for each individual analyses accompanied by the explanation of the variables used in the research method. At first, the methods and variables used for the analyses of the determinants of target bonuses (hypotheses 1) are explained. Secondly, the methods and variables used for the analyses of the probabilities that an executive has to reach his target over time under different conditions (hypotheses 2). Finally, I discuss the methods and variables used for the analyses of the correlation between the abnormal bonuses over time (hypotheses 3).

3.2.1 Test of the first hypotheses

The first hypotheses will be tested using a linear regression to estimate the determinants of the executives' target bonuses. The linear regression model (OLS regression) that tests the first hypotheses (Indjejikian and Nanda, 2002):

$$T_t = \alpha + \beta_1 \text{VarRoe} + \beta_2 \text{MTB} + \beta_3 \text{LnSales} + \beta_4 \text{VarRet} + \varepsilon$$

Where,

- T_t = the target bonus for the executives of the firm, scaled by their base salary, for the year t.

$$T_t = \frac{\text{Target bonus an executive expects to earn for fiscal year t performance}}{\text{Executive's base salary for fiscal year t}} \times 100\%$$

- VarRoe = a firm's variance of return on equity (i.e., measurement noise).
- MTB = a firm's average ratio of market value of equity to book value of equity (i.e., growth opportunity).

- LnSales = the natural logarithm of average firm sales and average business unit sales (proxy for decision-making authority).
- VarRet = the natural logarithm of time-series variance of annual stock returns (proxy for decision-making authority).

The dependent variable in the OLS regression is the target bonus. This target has either been explicitly disclosed or is calculated by myself. In my analysis I use the target bonus to examine its relation with measurement noise, growth and the extent of the decision-making authority for the years 2005 until 2010 following Bouwens and Kroos (2011).

3.2.2 Test of the second hypotheses

Hypothesis 2 will be tested using a non-parametric test of differences in proportions of the bonus target received by the executives. The null hypotheses of the test is equal to the second hypotheses (Indjejikian and Nanda, 2002), the non-parametric test hypotheses are:

H_0: The probability that an executive receives a bonus greater than or equal to his target bonus is independent of whether, in prior period, the executive received a bonus that was greater than or less than his target bonus $\{Pr(A_t \geq T_t \mid A_{t-1} \geq T_{t-1}) = Pr(A_t \geq T_t \mid A_{t-1} < T_{t-1})\}$[6].

H_1: Contradiction of H_0 $\{Pr(A_t \geq T_t \mid A_{t-1} \geq T_{t-1}) \neq Pr(A_t \geq T_t \mid A_{t-1} < T_{t-1})\}$[7].

To test whether the probability that an executive receives a bonus greater than or equal to his target bonus, is not dependent on the target bonus last year requires the following variables:

- T_t = the target bonus for the executives of the firm, scaled by their base salary, for the year t.

[6] The theory behind this prediction is stated in appendix F.
[7] The theory behind this prediction is stated in appendix F.

T_t = Target bonus an executive expects to earn for fiscal year t performance x 100%

Executive's base salary for fiscal year t

- A_t = the actual bonus for the executives of the firm, scaled by their base salary, for the year t.

A_t = Actual bonus an executive earns for fiscal year t performance x 100%

Executive's base salary for fiscal year t

- T_{t-1} = the target bonus for the executives of the firm, scaled by their base salary, for the year t-1.
- A_{t-1} = the actual bonus for the executives of the firm, scaled by their base salary, for the year t-1.

The research method is based on Indjejikian and Nanda (2002). To determine target difficulty I evaluate actual bonus against the target bonus. The executives target bonus and the actual bonus are evaluated relatively to the executive's base salary. Using this measure of the target bonus, controls for scale effects and also takes in account that the bonus payout, which companies use for their executives, is often a fraction of the base salary.

3.2.3 Additional tests for the second hypotheses

The second analyses will also include an investigation of the ability of executives of banks in the Netherlands to reach their target bonus. It will also include a growth analyses of the fixed salary and total variable remuneration. This will provide additional information about the difficulty for executives to reach their targets and about the total content and development of the (total) remuneration of executives.

With regard to the growth analyses, it is expected that the fixed salary has been growing steadily over the years, due to inflation and other economic circumstances, like increasing competition and globalization.[8] Consistent with Gabaix and Landier (2008), I expect that fixed salaries and variable compensation will increase with firm growth. Furthermore, I expected that this variable remuneration will decrease heavily in the year 2008, because of the financial crisis that hit the Netherlands that year. For the years after 2008 it is expected that this variable payment will increase steadily, due to increasing performance of the economy (and therefore financial industry).[9] The growth analyses of the basic salary and variable remuneration will provide new insight in the development of the executives' remuneration, which can be useful to explain the other hypotheses.

Research from Merchant and Manzoni (1989) found, that the likelihood of achieving any target in any particular year is equal to approximately 80 percent. Later studies conducted by the controller institute in 2008 and 2009 (www.ci.nl) have consistently reported the same likelihood of 80 percent. I will therefore apply the 80 percent, as a bench mark to assess target difficulty for the executives of Banks in the Netherlands. Furthermore, I will collect additional information on the difficulty executives appear to have in meeting/beating their targets (Indjejikian and Nanda, 2002). A second additional test is conducted to assess the probability of an executive meeting/beating the target in any particular year, independent of whether the target was met/exceeded during the preceding year. Also the possibility for an executive to reach a target is measured. These can be stated as follows:

Beat target: $A_t > T_t$

Beat a particular target: $A_t > 0$

Where A_t

- T_t = the target bonus for the executives of the firm for the year t.
- A_{t-1} = the actual bonus for the executives of the firm for the year t.

[8] The fixed salaries of top management personnel in the Netherlands is increasing since the early '90s with approximately 9% each year (Centraal Plan Bureau).
[9] Centraal Plan Bureau (CPB): economy growth in the Netherlands decreases rapidly in the year 2008 and the first months in 2009, but then increases steadily (chart is shown in appendix B).

The composition of the relevant variables for the second additional analyses (A_t, T_t, A_{t-1} and T_{t-1}) are already stated in the first two analyses. To conduct the growth analyses I use the average fixed remuneration, short-term variable remuneration and total variable remuneration in each year, from 2005 until 2010.

3.2.4 Test of the third hypotheses

In my third hypotheses I will test whether executives' abnormal bonuses are serially uncorrelated. I will distinguish between expected and unexpected or abnormal bonus. A bonus is unexpected when a particular manager has the same or a higher likelihood over consecutive years of achieving his/her targets. This practice seem to suggest that targets are adjusted so as to make sure that managers get their bonus (the same or more than last year) each period. If the abnormal bonuses are serially uncorrelated, the target bonuses fully reflect all past performance and the current target bonus should be independent on meeting/beating the target bonus last year. In this case, β_1 and β_3 do not differ significantly from zero and the executive's abnormal bonuses are monotonically linked to their abnormal performance. This will be tested using the following OLS regression (Indjejikian and Nanda, 2002):

$$(A_t - T_t) / T_t = \alpha + \beta_1 \{(A_{t-1} - T_{t-1}) / T_{t-1}\} + \beta_2 \, BELOW_{t-1} + \beta_3 \, BELOW_{t-1} * \{(A_{t-1} - T_{t-1})/T_{t-1}\} + \text{year dummies} + \text{industry effects} + \varepsilon$$

Where,

- $(A_t - T_t) / T_t$ = abnormal bonus at year t, scaled by the target bonus at year t.
- $(A_{t-1} - T_{t-1}) / T_{t-1}$ = abnormal bonus at year t-1, scaled by the target bonus at year t-1.
- $BELOW_{t-1}$ = dummy variable, that is 1 if $A_{t-1} < T_{t-1}$ and 0 otherwise. This dummy variable is included to allow for the possibility that firms revise standards asymmetrically.
- Year dummies = dummy variable, that is 1 for the appropriate year and 0 otherwise.
- Industry effects = dummy variable, that is 1 for group organizations and 0 for banks.

The dependent variable of the OLS regression is the abnormal target bonus at year t, meaning that it is the measured, declared or observed variable. In this analysis, the abnormal target bonus is used to describe the relationship with the abnormal target bonus at year t-1, the dummy variable ($A_{t-1} < T_{t-1}$) and the combined variable of the abnormal target bonus at year t-1, under the condition that $A_{t-1} < T_{t-1.}$ Those variables are the independent variables that try to predict the change in the dependent variable, the abnormal target bonus.

The control variables that are used in this regression are the year dummies and the industry effects, both are dummy variables. The composition of the relevant variables (A_t, T_t, A_{t-1} and T_{t-1}) are already stated in the first two analyses or in the description of the variables in the OLS regression.

3.2.5. Conditions for tests

Ideally firms would provide information on performance in each target/performance measure used in the compensation contract. However, in most cases banks only provide some superficial information on targets. As a consequence I have found, in most cases, some information on what is the identity of the performance measures used in the compensation contract. Furthermore, in most cases I have no information of what target is set in each specific performance measure making up the contract. The information that is provided is limited to the size of the total bonus. However, I get some idea of how many targets have been met/beat by comparing the bonus to the fixed salary. I develop a scale were I assume that the percentage of the fixed pay represents the extend tow which targets were achieved. For instance, when 50 per cent of the fixed salary paid out as a bonus, I assume that 50 per cent of the targets were met. My analysis starts from the assumption that achieving any target represents a situation where all targets are met.

Using these assumptions I will tests the hypotheses under different conditions. I apply the following conditions:

1. All data less the cases where the variable remuneration is zero. In this case I assume that managers who receive any bonus exceed their targets T in that particular. I thus examine the situation where any bonus was paid: $A_t > 0$.

2. All data, less the cases where the variable pay is zero. I relate the executives' bonus to their fixed pay. They have met all targets if their variable income is equal to their fixed pay. In this case I examine whether: $A_t > T_t$.
3. All data (for any target) and all data less the cases where the remuneration is zero (for full target), for each year from 2005 until 2010. In this case I check for the difficulty for executives to reach any target and their full target for each year separately.

The conditions that are described above apply for the analyses of the second hypotheses and for the second additional analyses made for the second hypotheses. The third hypotheses will be explained using a part of these conditions. Also in appendix G there are more conditions used, than the ones stated above, to gain more information about the difficulty for executives to reach their targets.[10]

[10] The other conditions are further described in appendix G.

4. Results

In this section the results of the different tests of hypotheses will be analyzed. The results of the first, second and third hypotheses will be discussed in the sections 4.1 to 4.3 respectively. At last, a sensitivity analyses will be presented in section 4.4.

4.1 Test of the first hypotheses

At first this section will provide the descriptive statistics of the data necessary for this part of the research. These statistics of the Banks that reported a target bonus percentage. A total of 374 remuneration individual executive data, for the analyses of the first hypothesis, are gathered in table 3. The correlations among the variables will be tested and are presented in table 4. This section will end with the results of the first hypotheses.

Table 3: Descriptive statistics of this section.

Variable	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Dev.**
Variance of ROE	374	0,00	0,34	0,0327	0,06319
Market-to-book ratio	305	0,21	5,57	1,5465	1,11282
Firm sales	293	63.956,00	109.000.000	48.070.000	31.956.900
Variance of stock return	321	0,00	0,75	0,1760	0,18206
Target bonus percentage	374	0,17	3,48	0,8453	0,42468

Table 4: Correlation table for the sample.

	MTB	LnSales	VarRet	Target
VarRoe	0,258***	0,136**	0,410***	-0,253***
MTB		-0,047	-0,137**	-0,038
LnSales			-0,339***	0,550***
VarRet				-0,255***

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

The descriptive statistics for the first hypotheses stated in table 3 show us that the mean sales are 48,070 billion, because the amounts must be multiplied by thousand. Also the descriptive statistics show that the mean of the executives that have a reported target bonus, is approximately 84,53 percent.

The correlations among the variables used in the first analyses are reported in table 4. These correlations provide evidence for the first hypotheses with regard to the variables VarRoe and LnSales. The MTB and VarRet variables where expected to be positive and significant, but instead they are negatively related to the executives' target bonus.

The first hypotheses will be tested using an OLS regression. I will test the executives' determinants of the target bonus percentage, according to Indjejikian and Nanda (2002). The regression will be executed for all executives wherefore the target bonuses are known, using the following regression:

$$T_t = \alpha + \beta_1 \text{VarRoe} + \beta_2 \text{MTB} + \beta_3 \text{LnSales} + \beta_4 \text{VarRet} + \varepsilon$$

According to table 5, the predictions I made based on Indjejikian and Nanda (2002) are generally consistent with the results. An executives' target bonus is significant negatively associated with the variance of the return on equity. This means that if the noise in accounting performance measures increase with 10 percent, the target bonuses of executives decreases with approximately 56,6 percent. The executives' target bonus is significant positively related to the firms' market to book ratio, which assumes that if the firms' growth opportunities increase with 10 percent, the executives' target bonus increases with 1,29 percent. The executives' target bonuses are also significant positively related to the logarithm of sales, which represents the executives' extent of their decision making authority. However, the other variable that represents the executives' decision making authority, the logarithm of the variance in the stock return, is not significant and negative instead of positive.

Overall, the evidence from table 5 confirms that determinants of the actual bonuses (at years' end) identified in prior research (Fisher and Govindarajan, 1993; Baiman et al., 1995; Nagar, 2002) explain the firms' performance measures, that are represented in the target bonuses of executives. Although the logarithm of the variance in the stock return is not

significant and negative instead of positive, the logarithm of the sales is so, and confirms the relationship described by Prendergast (2001) and Nagar (2002). The results remains unchanged after controlling for yearly effects.

Table 5: OLS estimates of the determinants of executives' target bonuses, including an OLS regression which controls for yearly effects.

Variables	**Predicted sign**	**Executives' target bonus**	**Executives' target bonus + year dummies**
Interceptive		-1,195*** (-7,335)	-1,446*** (-8,483)
VarRoe	–	-5,656*** (-6,776)	-5,280*** (-6,674)
MTB	+	0,129*** (6,194)	0,186*** (7,896)
LnSales	+	0,280*** (11,975)	0,293*** (13,477)
VarRet	+	-0,022 (-0,417)	-0,009 (-0,179)
Adj. R^2		0,437	0,526
F-statistic		54,586***	34,979***
N		276	276

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

4.2 Tests of the second hypotheses and additional tests.

To begin this section I will provide the descriptive statistics of the data necessary for this part of the research. These are descriptive statistics of the remaining 25 Banks. A total of 639 individual remuneration year observations, for the analyses of the second hypothesis, are gathered in table 6. Afterwards the extra hypotheses will be tested that support the main test of hypotheses 2. At last, the second hypotheses will be investigated.

Table 6: Descriptive statistics of this section.

Variable	N	Minimum	Maximum	Mean	Std. Dev.
Fixed remuneration	635	29167,00	7100000,00	592098,69	6,5594E5
Variable remuneration ST	528	0,00	4292000,00	394256,57	5,4743E5
Variable remuneration LT	463	0,00	7701000,00	458174,49	9,0037E5
Variable Total	631	0,00	9101000,00	804132,14	1,2239E5
Actual bonus percentage	631	0,00	12,95	0,7295	1,0514
Target bonus percentage	635	0,00	3,48	0,4979	0,5285
Target bonus percentage (where 0 = 100%)	635	0,17	3,48	0,8694	0,3627
Target bonus percentage (where 0 = 50%)	635	0,17	3,48	0,7116	0,3695

In table 6, the descriptive statistics of the relevant variables are shown. The minimum for the target bonus percentages is 0 percent, which is possible due to the lack of target data of all companies included in this research.

4.2.1 Growth analyses

Since the descriptive statistics include all data, it does not show any yearly effects of the variables. This study includes a growth analyses of the fixed and variable remuneration, because I expect that the year 2008 has a significant effect on the results of this analyses due to the financial crisis. A study done by the Rotterdam School of Management, indicates that the remuneration of employees includes a increasing variable amount over time. In other words, the total remuneration of employees became more variable throughout the years.[11] The growth of the fixed and variable remuneration are shown in table 7.

According to table 7, the growth percentages of the average fixed salary from 2005 to 2010 are decreasing for the years 2005 to 2009. This is not in line with the growth percentage of 9 from to the CPB[12]. A possible explanation for this decrease in the fixed remuneration, is that the total remuneration of executives becomes more variable throughout the years (RMS[11], 2009). This assumption could be explained by the increase in the executives' actual bonuses.

[11] Part of the Erasmus University (Rotterdam), investigation for the years 2005 until 2008.
[12] Centraal Plan Bureau: an independent research institute in the Netherlands.

Table 7: Growth analyses of fixed remuneration, under the sixth condition.

Year	Fixed remuneration	Short term variable remuneration	Total variable remuneration
2010	606.304,2952 **(13,2786%)***	270.093,8256 **(11,2395%)***	755.522,8614 **(45,6914%)***
2009	535.232,8337 **(-7,3537%)***	242.803,8889 **(69,7890%)***	518.577,5781 **(89,0029%)***
2008	577.716,4535 **(-3,1867%)***	143.003,3161 **(-74,9135%)***	274.375,4425 **(-78,6810%)***
2007	596.732,7006 **(-2,7699%)***	570.042,0225 **(-16,3779%)***	1.287.000,0000 **(19,9888%)***
2006	613.732,5545 **(-5,4755%)***	681.688,6076 **(20,6525%)***	1.072.600,0000 **(3,5828%)***
2005	649.284,4321	565.001,6197	1.035.500,0000

*Growth percentage

Furthermore, table 7 shows the growth in the variable remuneration. The total variable remuneration is increasing for the years 2005 to 2007 and 2009 to 2010. Only in the year 2008 a large decrease in this variable remuneration is mentioned, which can be explained by the introduction of the financial crisis in the Netherlands. This is roughly the same for the short-term variable remuneration, which is also decreasing in the year 2007. A possible explanation for this decrease in short-term variable remuneration, is that in this year more long-term variable remuneration has been paid to executives.

The large increase in the total variable remuneration for 2007 can be explained by the outstanding performance of the financial sector (and total economy) in the Netherlands for that year. The large increases for the years 2009 and 2010, can be explained by the large decrease in variable remuneration in 2008. Due to this large decrease in variable payment, the variable remuneration for the years 2009 and 2010 seem to grow fast, although the absolute level is not near the level it was before the crisis.

4.2.2 Analysis of the likelihood that executives reaches their target

The test of the second hypotheses includes a two consecutive year effect. However, in this section I will focus on the likelihood of executives reaching their target in one year, not dependent on last years' performance. Furthermore, I will investigate the executives' likelihood to reach any target and his full target.

Table 8: The likelihood that an executive reaches any target.

$A_t = 0$	$A_t \geq 0$
195 (30,9%)	436 **(69,1%)**

According to table 8, the likelihood that an executive has to reach his target is about 69,1 percent (row percentage of the number of observations), when using all data. The percentage is about 10 percent smaller than expected 80 percent. The percentage of 69,1 percent however includes the cases where although the variable remuneration is zero, executives still reached their targets. So, to better understand the percentage given above, I will use other conditions to filter out these zero's (Indjejikian and Nanda, 2002). In this case only the executives that reached any target are included to investigate the likelihood of reaching a pre-specified target bonus.

The next tables includes the likelihood that an executive reaches his full target. Because many companies do not report the target for their executives, I will make fictitious targets of 100 percent base salary and 50 percent base salary.

Table 9a: The likelihood that an executive reaches all of his targets (use of fictitious target of 100%).

$A_t < T_t$	$A_t \geq T_t$
186 (42,6%)	251 **(57,4%)**

Table 9b: The likelihood that an executive reaches all of his targets (use of sample target mean = 50%).

$A_t < T_t$	$A_t \geq T_t$
163 (37,3%)	274 **(62,7%)**

According to table 9a (and 9b), the likelihood that an executive reaches his full target is about 57,4 percent (when a fictitious target of 50 percent is taken, which is the mean sample target, this percentage is 62,7 percent), when using all data except the cases where the variable remuneration is zero. The data will be excluded, because of non-payment of companies due to the current financial or social situation. In some cases, companies state that this non-payment has nothing to do with the achievement of target by executives.

In the year 2008, the financial crisis hit the Netherlands. This crisis led to enormous losses in the financial industry, which could have had an effect on the payment of bonuses and the target bonuses. For mainly this reason, I will investigate the likelihood of reaching a target and the full target for en executive in each year. The results of this yearly analysis are depicted in table 10.

According to table 10, the likelihood that executives reached any target over the years has decreased. What strikes out, is the executives' likelihood, which is above 90 percent for the years 2005 until 2007, but decreases for the years 2008 and 2009. As suggested above, this can be an effect of the financial crisis, that struck the Netherlands in the year 2008. It could also be the case that, in the years after 2008, the economy was still recovering from this blow. By looking at this possible explanation, the increase in the likelihood to 65,3 percent in 2010, can also be explained as the recovering of the financial industry. That this likelihood is not as high as in the years before the financial crisis (about 90+ percent), may be explained by the fact that many financial organizations, like ABN AMRO, do not pay out any bonuses due to the current public debate about the bonus payments of government backed Banks.

Overall the results for any target are above the expectation of a likelihood that is about 80 percent, for the years 2005 until 2007. Afterwards, for the years 2008 until 2010, the results are below the expectation of 80 percent, which can be explained by the financial crisis that struck the Netherlands in the year 2008. This is confirmed by the yearly analyses and the

extra analyses described in appendix H, which indicate larger target achievement percentages when the year 2008 is excluded. The results furthermore suggest that executives have a large chance to reach any target in the years 2005 to 2007 and that this chance has dropped in 2008, which could be explained by the financial crisis in the Netherlands. The full target situations show similar results, but the percentages are all below 80 percent (although high in the years before the crisis).

Table 10: The likelihood that an executive reaches any or his full target for each year separately.

Year	**Any target**		**Full target (100%)**		**Full target (50%)**	
	$A_t = 0$	**$A_t \geq 0$**	**$A_t < T_t$**	**$A_t \geq T_t$**	**$A_t < T_t$**	**$At \geq T_t$**
2010	35 (34,7%)	66 **(65,3%)**	29 (43,9%)	37 **(56,1%)**	29 (43,9%)	37 **(56,1%)**
2009	75 (58,6%)	53 **(41,4%)**	26 (49,1%)	27 **(50,9%)**	22 (41,5%)	31 **(58,5%)**
2008	66 (58,4%)	47 **(41,6%)**	42 (89,4%)	5 **(10,6%)**	38 (80,9%)	9 **(19,1%)**
2007	11 (10%)	99 **(90%)**	38 (38,4%)	61 **(61,6%)**	32 (32,3%)	67 **(67,7%)**
2006	8 (7,9%)	93 **(92,1%)**	31 (33,3%)	62 **(66,7%)**	22 (23,7%)	71 **(76,3%)**
2005	2 (2,5%)	79 **(97,5%)**	20 (25,3%)	59 **(74,7%)**	20 (25,3%)	59 **(74,7%)**

Furthermore, table 10 implicates that for the full target condition the likelihood also decreased over the years. Where the likelihood was around the 70 percent in the years 2005 until 2007, it dropped in the year 2008 as suggested. Also the likelihood increased again for the year 2009 and remained about the same for the year 2010. This is an implication of the difficulty for executives to reach their targets in the year 2008, but afterwards (when the financial/economic situation improved) the likelihood to reach targets increased again.

To finish this section, extra table 11 describes the number of executives that reached a certain target bonus. According to this table, approximately 50 percent of the executives that reached any target, gained a bonus up to 80 percent of their base salary. Also, this table shows the most executives earned a bonus between the 40 and 50 percent interval.

Extra table 11: Actual bonus, scaled by the base salary where the zero's are excluded.[13]

Bonus percentage	**Number of executives**	**Percentage**	**Cum. Percentage**
0-10%	30	6,86%	6,86%
10-20%	11	2,52%	9,38%
20-30%	22	5,03%	14,42%
30-40%	42	9,61%	24,03%
40-50%	52	11,90%	35,93%
50-60%	28	6,41%	42,33%
60-70%	18	4,12%	46,45%
70-80%	17	3,89%	50,34%
80-90%	20	4,58%	54,92%
90-100%	11	2,52%	57,44%
100-110%	10	2,29%	59,73%
110-120%	24	5,49%	65,22%
120-130%	18	4,12%	69,34%
130-140%	8	1,83%	71,17%
140-150%	16	3,66%	74,83%
150-160%	23	5,26%	80,09%
160-170%	24	5,49%	85,58%
170-180%	16	3,66%	89,24%
180-190%	5	1,14%	90,39%
190-200%	6	1,37%	91,76%
200+%	36	8,24%	100%
Total	**437**	**100%**	

4.2.3 Test of the second hypotheses

The second hypotheses will be tested using a non-parametric test of differences. Indjejikian and Nanda (2002) argue that the likelihood of achieving a next-period targets should not be related with the incidence that executives meet their target in the current year. This will be tested using the conditions as stated above using crosstabs as depicted in table 12.

[13] The graphic figure is included in appendix E.

Table 12: Frequency distribution of the likelihood that executives has to reach any target in two consecutive years.

		$A_t = 0$	$A_t > 0$
Total %	$A_{t-1} = 0$	17,61%	8,22%
Row %		68,18%	**31,82%**
Total %	$A_{t-1} > 0$	17,84%	56,34%
Row %		24,05%	**75,95%**

Z-statistic = 8,378 (p-value = 0,000)

According to table 12, executives that did not receive any target bonus last year, have a 31,82 percent chance of receiving any target bonus this year. Also stated in table 12 is that executives, who received any target bonus last year, have a 75,95 percent chance of receiving any target bonus this year. These percentages are statistically significant with a z-statistic of 8,378. The evidence from table 12 rejects the null hypotheses that the possibility of executives to reach any target is independent on their past performance, which is contradictory to my expectations. This suggest, that firms do not completely adjust performance standards to reflect executives' past performance as is also founded by Indjejikian and Nanda (2002).

Nevertheless, as stated in section 4.2.2, these percentages include the cases where although the variable remuneration is zero, executives still reached their targets. So, I will exclude the zero's from the sample for further investigation about the likelihood of executives to reach their full targets over two consecutive years as depicted in tables 13a and 13b.

Table 13a: Frequency distribution of the likelihood that executives has to reach their full target (of 100% fixed salary) in two consecutive years, using all data less the zero's.

		$A_t < T_t$	$A_t \geq T_t$
Total %	$A_{t-1} < T_{t-1}$	30,07%	13,41%
Row %		69,17%	**30,83%**
Total %	$A_{t-1} \geq T_{t-1}$	15,94%	40,58%
Row %		28,21%	**71,79%**

Z-statistic = 7,512 (p-value = 0,000)

Table 13b: Frequency distribution of the likelihood that executives has to reach their full target (of 50% fixed salary) in two consecutive years, using all data less the zero's.

		$A_t < T_t$	$A_t \geq T_t$
Total %	$A_{t-1} < T_{t-1}$	22,83%	18,12%
Row %		55,75%	**44,25%**
Total %	$A_{t-1} \geq T_{t-1}$	15,22%	43,84%
Row %		25,77%	**74,23%**

Z-statistic = 5,045 (p-value = 0,000)

According to table 13a, the executives that did not receive their full target (100%) bonus last year, have a 30,83 percent chance of receiving their full target bonus this year. Also stated in table 13a is that executives that received their full target bonus last year, have a 71,79 percent chance of receiving their full target bonus this year. According to table 13b, the executives that did not receive their full target bonus last year, have a 44,25 percent chance of receiving their full target bonus this year and the executives that did, have a 74,23 percent chance of receiving their full target bonus this year. These percentages are statistically significant with a z-statistic of 7,512 for table 13a and 5,045 for table 13b. The evidence from tables 13a and 13b rejects the null hypotheses that the possibility of executives to reach any target is independent on their past performance. This suggest, that firms do not completely adjust performance standards to reflect executives' past performance as is also founded by Indjejikian and Nanda (2002).

In the test analyses for the second hypotheses, all company years have been included. To test whether one or more years have a significant influence on the results, I will show the results for the likelihood of executives to reach any and their full target for each year in table 14. No results can be analyzed for 2005, because the year 2004 is not included in this study.

According to table 14, the likelihood for executives to reach any target in the current year, under the condition that they also reached any targets last year, was almost 100 percent for the years 2006 and 2007. A decline in this chance is seen for the year 2008 and 2009, afterwards in 2010 a large increase in the likelihood (towards the former percentage of likelihood) is noticed. A possible explanation for this sudden decline in P (At ≥ Tt | At-1 ≥ Tt-1), can be the financial crisis that hit the Netherlands in 2008. The small likelihood for the

year 2009, can be declared as an aftermath of the 2008 crisis, which would have had an influence in the 2009 figures due to the At-1 ≥ Tt-1 variable (the variable that indicates if the actual bonuses are larger or equal to the target bonuses last year).

Table 14: Frequency distribution of the likelihood that executives has to reach any target and their full target (both 100% and 50% of fixed salary) in two consecutive years for each year, using all data less the zero's.

Year	**Any target**		**Full target (100%)**		**Full target (50%)**	
	P (At ≥ 0| At-1 < 0)[14]	**P (At ≥ 0| At-1 ≥ 0)[15]**	P (At ≥ Tt | At-1 ≥ Tt-1) [16]	**P (At ≥ Tt | At-1 < Tt-1) [17]**	P (At ≥ Tt | At-1 < Tt-1)	**P (At ≥ Tt | At-1 ≥ Tt-1)**
2010	54,17%***	**91,67%***	34,21***	**85,71%***	33,33%***	**82,61%***
2009	20,45%***	**51,16%***	46,67%	**0,00%**	53,57%	**66,67%**
2008	0,00%***	**46,51%***	0,00%	**16,13%**	12,5%	**25,00%**
2007	0,00%***	**97,50%***	30,77%***	**86,54%***	33,33%***	**80,00%***
2006	0,00%***	**98,55%***	11,76%***	**86,27%***	53,33%**	**83,02%****

*Significant at 10%, **Significant at 5%, *** Significant at 1%.

Another important indication from table 14 about the executives' likelihood to reach any target, under the condition that they reached any target last year as well, is that in each year the null hypotheses is rejected. This means that for every year, the probability that an executive will reach his performance target is not independent of his past performance. In other words, firms do not fully adjust their performance standards to reflect executives' past performance in all the investigated years.

[14] P (At ≥ 0| At-1 < 0) = likelihood that the current actual bonus is larger than 0, under the condition that the actual bonus last year is *smaller* than 0 last year.
[15] likelihood that the current actual bonus is larger than 0, under the condition that the actual bonus last year is *larger* than 0 last year.
[16] P (At ≥ Tt | At-1 < Tt-1) = likelihood that the current actual bonus is larger than the current target bonus, under the condition that the actual bonus last year is *smaller* than the target bonus last year (further described in appendix E).
[17] P (At ≥ Tt | At-1 ≥ Tt-1) = likelihood that the current actual bonus is larger than the current target bonus, under the condition that the actual bonus last year is *larger* than the target bonus last year (further described in appendix E).

Furthermore, table 14 shows us the almost same situation for the likelihood for executives to reach their target, both at 100 and 50 percent. Also the years 2008 and 2009 are different than the other years included in this study, which can be explained by the financial crisis as it can be done for the situation where executives reached any target. Interesting are the likelihoods in the year 2006 and 2007, which are larger for full target at 100 than at 50 percent. Although the absolute number of executives that reached their target in the current year, if they also reached it last year, is declining, it seems that relatively the chance is increasing if the target increases. A possible explanation for this situation is that, because more executives receive a bonus around the mean target bonus at 50 than at 100 percent, executives might have a larger possibility to miss their target around 50 percent than around 100 percent.[18] Furthermore, for this analyses I only use the fictitious full targets for executives that did not report any target. This will have an influence on the chances as well, because for this group the targets are different from the 50 and 100 percent targets and the results for this group will not change if another full target is taken. Another possible explanation could be that the likelihood of achieving a full target at 100 percent if you received a full target 100 percent last time as well, signifies that people with easy targets in year t get easy targets in T+1, while this is not true for people that achieve only 50 percent of their targets in year t.

A difference between the results of any target and full target is that in the full target situation, the year 2008 and 2009 is statistically insignificant. This implicates that the null hypotheses is not rejected and that the likelihood that an executives will achieve his performance targets is independent on his past performance (so, the targets fully reflect past performance). For all the other years the results are statistically significant and the null hypotheses must be rejected.

To end this section, I have included table 15, which contains the result of the analyses for different target bonus percentages. According to extra table 15, the likelihood that an executive reaches his target in the current year, under the condition that he reached his target last year, is decreasing when the target bonus percentage is increasing. This can be explained, due to the harder standards to reach the targets the less likely it will be for executives to reach their targets.

[18] P ($A_t \geq T_t \mid A_{t-1} < T_{t-1}$) is larger for the 50% full target sample than for the 100% full target sample. An example: executive A reached a target of 55% last year, but in the current year only 45%. This will be an observation under the P ($A_t \geq T_t \mid A_{t-1} < T_{t-1}$), but in the case of the 100% full target it will be an indication of the P ($A_t < T_t \mid A_{t-1} < T_{t-1}$).

Extra table 15: Frequency distribution of different target bonuses, where the zero's are excluded.[19]

Bonus Percentage	**Bonus target interval**	
	P (At ≥ Tt | At-1 < Tt-1)	**P (At ≥ Tt | At-1 ≥ Tt-1)**
10%	77,11%***	**96,55%*** **
20%	64,58%***	**95,20%*** **
30%	58,18%***	**90,99%*** **
40%	47,44%***	**88,94%*** **
50%	36,78%***	**83,68%*** **
60%	18,97%***	**84,47%*** **
70%	21,54%***	**82,99%*** **
80%	18,75%***	**85,71%*** **
90%	13,73%***	**82,26%*** **
100%	14,47%***	**80,51%*** **
110%	14,88%***	**77,98%*** **
120%	18,52%***	**78,41%*** **
130%	17,09%***	**74,36%*** **
140%	16,34%***	**70,67%*** **
150%	12,68%***	**68,06%*** **
160%	12,50%***	**52,36%*** **
170%	9,65%***	**44,90%*** **
180%	5,79%***	**45,71%*** **
190%	4,49%***	**46,88%*** **
200%	3,21%***	**42,86%*** **

*Significant at 10%, **Significant at 5%, *** Significant at 1%.

Overall, the results of the analyses of the second hypotheses indicate that the likelihood of achieving a next-period target is related to the incidence that executives meet their target in the current year. This can be concluded due to the significant difference in the likelihood that an executive does not reach his current target, while he reached his target in the past year {P (At ≥ Tt | At-1 < Tt-1)} and the likelihood that an executive reaches his

[19] Different from the analyses done for the full targets at 50% and 100%, because in this table the target is set at the bonus percentage level for all executives (not only for executives that do not reported a target). In appendix I, extra table 2, the situation less the year 2008 is described.

current target, while he also reached his target in the past year {P (At ≥ Tt | At-1 > Tt-1)}. These results are contradictory to my expectations that the target bonuses are independent throughout time, based on Indjejikian and Nanda (2002).

Furthermore, when I look at the chances that executives have to reach their full target in the current year, dependent on the performance last year, I can see that this percentage for the whole sample lies around 70-75 percent. When the year 2008 is taken out, this percentage increases by approximately 10 percent towards 80-85 percent for the full target situation, also described by extra analyses in appendix I.

Looking at the situation where the executives reached any target in the current year, dependent on the achievement of any target in the last year, the percentage lies around 75 percent. When the year 2008 is taken out this percentage increases also with approximately 10 percent towards 85 percent, also described in appendix I. These large percentages assume that the targets are not difficult to achieve.

4.3 Test of the third hypotheses

The third hypotheses will be tested using an OLS regression. I will test the executives' abnormal bonus percentage on its lagged values according to Indjejikian and Nanda (2002). The regression will be executed partly under the same conditions as for the test of the second hypotheses. The OLS regression used in this section is:

$$(A_t - T_t) / T_t = \alpha + \beta_1 \{(A_{t-1} - T_{t-1}) / T_{t-1}\} + \beta_2 \text{BELOW}_{t-1} + \beta_3 \text{BELOW}_{t-1} *$$

$$\{(A_{t-1} - T_{t-1})/T_{t-1}\} + \text{year dummies} + \text{industry effects} + \varepsilon$$

The OLS regression uses the abnormal target bonus, scaled by target variables $(A_t - T_t) / T_t$. Due to the scaling effect, another OLS regressions must be made for the condition where executives reached any target. The linear regression made for any target is based on the OLS regression for the full targets:

$$\text{Variable } (A_t > 0) = \alpha + \beta_1 \text{ Variable } (A_{t-1} > 0) + \beta_2 \text{ Dummy } (A_{t-1} = 0) + \beta_3 \text{ Dummy}$$

$$(A_{t-1} = 0) * \text{Variable } (A_{t-1} > 0) + \text{year dummies} + \text{industry effects} + \varepsilon$$

The abnormal bonus targets in the current year are replaced by variables representing the situation where an executive reaches any target, $A_t > 0$, scaled by their fixed salary. The abnormal bonus targets in the last year are replaced by variables representing the situation where an executive reached any target last year, $A_{t-1} > 0$, scaled by their fixed salary in the lagged year. The BELOW dummy from the original OLS regression is replaced by a dummy that represents the executives that did not reach any target bonus last year, $A_{t-1} = 0$. The results of the OLS regression analyses for any target situation are stated in table 16 and for the full target situations in table 17.

According to table 16, the regression is statistically significant with an adjusted R square ranging from 27,7 to 39,5 percent. The variable $A_{t-1} > 0$, which represents the achievement of any bonus by an executive scaled by their fixed remuneration last year, is statistically significant related to the achievement of any bonus in the current year. When the executives reached a target in the last year at 10 percent, they will receive an average bonus of approximately 5,66 percent in the current year. Because of the exclusion of the Variable ($A_{t-1} > 0$) * Dummy ($A_{t-1} = 0$) variable, no conclusions can be made about the likelihood that an executive misses his target, when he did also miss his targets last year.

According to table 17, all the regressions are statistically significant with the adjusted R^2 ranging from 27 to 31 percent. The coefficient of the executives' past abnormal bonus percentage, $(A_{t-1} - T_{t-1}) / T_{t-1}$, are positive and statistically significant for all regressions. This means that the null hypotheses, stating that the executives' abnormal bonus percentages are serially uncorrelated, must be rejected because β_1 is positive and significant.

The coefficients for the full target (100%) regression, where I control for year and industry effects, show us that if the executives bonus exceeded the target by 10 percent, their current bonus on average exceeded their target bonus by 3,83 percent. However, if in the prior year the executives missed their target by 10 percent, their current bonus on average missed their target bonus by 2,62 percent[20]. This measurement can be repeated for all situations. The

[20] From the analyses: 3,83% - 1,21% = 2,62%.

results for the different situations are statistically significant based on a F-test of the sum of coefficients, based on the statistical approach of Verbeek (2002)[21].

Table 16: OLS regression of persistence in executives abnormal bonus, the regression for the likelihood an executive has to reach any target.

Variables	**Any target**	
Interceptive	0,511***	1,148***
	(3,907)	(5,585)
Variable ($A_{t-1} > 0$)	**0,566*** **	**0,529*** **
	(10,498)	**(9,962)**
Dummy ($A_{t-1} = 0$)	-0,281	-0,180
	(-1,403)	(-0,870)
Variable ($A_{t-1} > 0$) * Dummy ($A_{t-1} = 0$)	Excluded	Excluded
Dummy 2010		-0,858***
		(-3,601)
Dummy 2009		-1,053***
		(-4,436)
Dummy 2008		-1,816***
		(-8,465)
Dummy 2007		Excluded
Dummy 2006		-0,665***
		(-2,871)
Dummy 2005		Excluded
Industry effects		0,466***
		(2,989)
F	82,225***	40,474***
F test ($\beta_1 + \beta_3 \neq 0$)	-	-
Adj. R2	0,277	0,395

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

[21] Marno Verbeek, A Guide to Modern Econometrics (2nd edition).

Table 17: OLS regression of persistence in executives abnormal bonus, the regression for the likelihood an executive has to reach his full target, both at 100% and 50% using all data less the zero's.

Variables	**Full target (100%)**		**Full target (50%)**	
Interceptive	0,174**	0,095	0,178	-0,135
	(2,089)	(0,614)	(1,745)	(-0,778)
{($A_{t-1} - T_{t-1}$)/ T_{t-1}}	**0,388*** **	**0,383*** **	**0,467*** **	**0,450*** **
	(7,362)	**(7,075)**	**(8,674)**	**(8,231)**
$BELOW_{t-1}$	-0,265	-0,271	-0,229	-0,238
	(-1,374)	(-1,328)	(-1,003)	(-1,026)
$BELOW_{t-1}$ {(A_{t-1} – T_{t-1})/ T_{t-1}}	-0,072	-0,121	-0,327	-0,485
	(-0,285)	(-0,445)	(-1,106)	(-1,505)
Dummy 2010		-0,023		-0,020
		(-0,137)		(-0,094)
Dummy 2009		-0,064		-0,002
		(-0,306)		(-0,009)
Dummy 2008		-0,308*		-0,161
		(-1,733)		(-0,760)
Dummy 2007		Excluded		Excluded
Dummy 2006		0,147		0,462**
		(0,961)		(2,574)
Dummy 2005		Excluded		Excluded
Industry effects		0,130		0,295**
		(1,060)		(2,014)
F	34,543***	14,119***	37,139***	16,464***
F test ($\beta_1 + \beta_3 \neq 0$)	11,196***	10,300***	37,736***	33,875***
Adj. R2	0,272	0,280	0,283	0,310

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

Furthermore, the coefficients for full target (50%) the regression, where I control for year and industry effects, show us that if the executives bonus exceeded the target by 10 percent, their current bonus on average exceeded their target bonus by 4,50 percent. However,

if in the prior year the executives missed their target by 10 percent, the executives' current bonus on average still exceeded their current target bonus by 0,35 percent[22]. This could be an indication of a to small target bonus at 50 percent, meaning that executives normally earn a bonus beyond 50 percent of base salary. The results are statistically significant based on a F-test of the sum of coefficients.

Overall, the results from table 17 indicate that the null hypotheses must be rejected, meaning that firms do not fully adjust the performance standards for executives to fully reflect past performance. Although this is not as expected, it is consistent with the results from the tests of the second hypotheses and the research done by Indjejikian and Nanda (2002).

Table 18: OLS regression of persistence in executives abnormal bonus, the regression for the likelihood an executive has to reach any target.

Variable	Year: 2010	Year: 2009	Year: 2008	Year: 2007	Year: 2006
Interceptive	0,445** (2,495)	-0,201 (-1,307)	0,137 (0,574)	0,740* (1,713)	0,218* (1,765)
Dummy ($A_{t-1} > 0$)	**0,603*** (10,119)**	**1,098*** (9,436)**	**0,242*** (2,903)**	**0,971*** (5,163)**	**0,902*** (15,677)**
Dummy ($A_{t-1} = 0$)	-0,082 (-0,398)	0,378** (2,059)	-0,137 (-0,260)	-0,740 (-0,656)	-0,218 (-0,456)
Dummy ($A_{t-1} > 0$) * Dummy ($A_{t-1} = 0$)	Excluded	Excluded	Excluded	Excluded	Excluded
F	93,170***	56,891***	5,011***	15,920***	129,576***
F test($\beta_1 + \beta_3 \neq 0$)	-	-	-	-	-
Adj. R2	0,682	0,574	0,077	0,262	0,786

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

Table 18 includes a yearly analyses of the any target situation. According to this table, the Variable ($A_{t-1} > 0$) is statistically significant for all the years. The meaning of this variable

[22] From the analyses: 4,50% - 4,85% = -0,35%.

is, that if the executives reached a target last year that was 10%, they will on average reach a target of 6,03% in the year 2010. This analyses can be repeated for all the other years. Because no information is available about the Variable ($A_{t-1} > 0$) * Dummy ($A_{t-1} = 0$) variable, no conclusion can be made about the likelihood that an executive misses his target, when he did also miss his targets last year.

Table 19: OLS regression of persistence in executives abnormal bonus, the regression for the likelihood an executive has to reach his full target (100%).

Variable	Year: 2010	Year: 2009	Year: 2008	Year: 2007	Year: 2006
Interceptive	0,076	-1,000**	-1,045***	-0,407***	0,030
	(0,640)	(-2,402)	(7,586)	(-3,351)	(0,438)
$\{(A_{t-1} - T_{t-1})/ T_{t-1}\}$	**0,392*** **	**Excluded**	**2,443*** **	**1,158*** **	**1,375*** **
	(8,497)		**(17,082)**	**(9,600)**	**(11,905)**
$BELOW_{t-1}$	-0,025	0,887*	0,399	0,641***	-0,215
	(-0,105)	(1,989)	(0,701)	(2,806)	(-1,015)
$BELOW_{t-1}$ $\{(A_{t-1} - T_{t-1})/ T_{t-1}\}$	0,024	0,005	-2,361***	0,018	-0,962**
	(0,100)	(0,023)	(-2,770)	(0,005)	(-2,638)
F	42,134***	2,181	100,400***	47,324***	86,979***
F test($\beta_1 + \beta_3 \neq 0$)	37,665***	0,006	145,898***	20,330***	71,179***
Adj. R2	0,680	0,073	0,884	0,653	0,799

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

In table 19, the OLS regression for the full target (100%) situation is stated for the years 2010 until 2006. The year 2005 is excluded, due to the absence of data for the year 2004. The main purpose of this table is to further explain any yearly effects on the relation between the executives' abnormal bonuses this year and last year. As can be seen in table 17, the dummy variable for year 2008 has a significant effect in the second regression of the full target (100%) and the year 2006 for the forth regression of the full target (50%). This could be an indication of strong yearly effects.

According to table 19, the null hypotheses, that states that the abnormal bonuses are serially uncorrelated, must be rejected for all the years except the year 2009. In this year the OLS regression and the F test of the sum of coefficients are not statistically significant. A possible explanation for the insignificance of the year 2009, can be found in the financial crisis of the year 2008, which could have had an effect on the lagged abnormal target bonus.

Furthermore, in the year 2008 the coefficients for full target (100%) the regression where I control for year and industry effects, show us that if the executives bonus exceeded the target by 10 percent, their current bonus on average exceeded their target bonus by 24,43 percent. However, if in the prior year the executives missed their target by 10 percent, their current bonus on average missed their target bonus by 0,82 percent[23]. These percentages are relatively large in comparison with the other years. The results for all the years, less the year 2009, are statistically significant based on a F-test of the sum of coefficients. So, overall the results of the yearly analyses are consistent with the findings from table 17.

Table 20: OLS regression of persistence in executives abnormal bonus, the regression for the likelihood an executive has to reach his full target (50%).

Variable	Year: 2010	Year: 2009	Year: 2008	Year: 2007	Year: 2006
Interceptive	0,280 (1,642)	0,227 (0,400)	-1,118*** (-5,670)	0,024 (0,159)	-0,074 (-0,607)
{($A_{t-1} - T_{t-1}$)/ T_{t-1}}	**0,352*** (5,088)**	**-0,103 (-1,253)**	**2,093*** (11,950)**	**0,495*** (5,938)**	**1,264*** (13,528)**
$BELOW_{t-1}$	-0,287 (-0,734)	-0,542 (0,829)	0,769 (1,495)	0,207 (0,593)	0,155 (0,466)
$BELOW_{t-1}$ {(A_{t-1} – T_{t-1})/ T_{t-1}}	-0,070 (-0,179)	-0,558 (-1,170)	-1,798* (-1,961)	0,765 (0,988)	-0,845 (-1,217)
F	17,788***	1,358	48,707***	16,690***	72,701***
F test($\beta_1 + \beta_3 \neq 0$)	13,214***	1,758	71,391***	18,969***	91,687***
Adj. R2	0,465	0,035	0,786	0,379	0,762

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

[23] From the analyses: 24,43% - 23,61% = 0,82%.

According to table 20, the null hypotheses, that states that the abnormal bonuses are serially uncorrelated, must be rejected for all the years except the year 2009. In this year the OLS regression is not statistically significant. Those results are almost the same as the results from the regression for the full target at 100 percent depicted in table 19.

Furthermore, in the year 2008 the coefficients for the full target (50%) regression where I control for year and industry effects, show us that if the executives bonus exceeded the target by 10 percent, their current bonus on average exceeded their target bonus by 20,93 percent. However, if in the prior year the executives missed their target by 10 percent, their current bonus on average missed their target bonus by 2,95 percent[24]. These percentages are relatively large in comparison with the other years. Overall, the results are statistically significant based on a F-test of the sum of coefficients and the abnormal bonuses are serially correlated, consistent with the results from table 17.

4.4 Sensitivity analyses

The results from the last two analyses of hypotheses 2 and 3, provided in the tables above, reject the null hypotheses. The evidence suggests that firms do not completely adjust performance standards to reflect executives' past performance, as is also founded by Indjejikian and Nanda (2002). However, the evidence found in this study can have alternative explanations. I will perform a robustness check for subjective or discretionary executives' bonuses and performance smoothing (Indjejikian and Nanda, 2002).

Subjective of discretionary executives' bonuses are checked, because the results from the analyses of the hypotheses can be rejected, if the firms consistently pay executives such a bonus dependent on dimensions that are not included in the performance standards or targets. If in this case the targets remain the same through time, the executives' abnormal target bonuses could be serially correlated even if the performance targets are independent on the executives' past performance. To control for this possible explanation, the variable IPE (individual performance evaluation) is introduced in the OLS regression of the third hypotheses. This variable includes the subjective or discretionary executives' bonuses (Bushman et al., 1995):

[24] From the analyses: 20,93% - 17,98% = 2,95%.

Full Target: $(A_t - T_t) / T_t = \alpha + \beta_1 \{(A_{t-1} - T_{t-1}) / T_{t-1}\} + \beta_2 BELOW_{t-1} + \beta_3 BELOW_{t-1}$

$\{(A_{t-1} - T_{t-1})/T_{t-1}\} + \beta_4 IPE + \beta_5 IPE * \{(A_{t-1} - T_{t-1})/T_{t-1}\}$ + year dummies + industry effects + ε

Any target: Variable $(A_t > 0) = \alpha + \beta_1$ Variable $(A_{t-1} > 0) + \beta_2$ Dummy $(A_{t-1} = 0) +$

β_3 Dummy $(A_{t-1} = 0)$ * Variable $(A_{t-1} > 0) + \beta_4$ IPE + β_5 IPE * Variable $(A_{t-1} > 0)$ + year dummies + industry effects + ε

According to former research (Bushman et al., 1995) 40 percent of the CEOs and 50 percent of the non-CEOs receive bonuses based on individual performance measures. In my thesis this percentage is about 44,4 percent, consistent with Bushman et al. (1995), although not for every company IPE data has been found. Controlling for individual performance evaluation means that, after including the IPE variables, the executives' abnormal target bonuses are still correlated to their abnormal target bonuses last year. The results from the analyses are stated in tables 21 and 22.

Performance smoothing is checked, because prior accounting research indicates that executives smooth income to gain personal benefits (Dechow and Skinner, 2002). Healy and Wahlen (1999) find that executives manage earnings because of the bonuses contracts they receive. These compensation contracts are developed to solve the principal-agency problem, using a variable compensation element based on the performance of an executive. Watts and Zimmerman (1978) suggest that these kinds of contracts can lead to earnings management. Earnings management can ensure that less costs are made and the firms' performance is stable over the years.

Healy (1985) further suggest that earnings management is used by executives, when they reached a target bonus maximum (as in the figure of appendix A). Smoothing income or performance at this point, makes it possible for managers to gain their maximum bonus over time (by cutting earnings) and so this could be an alternative explanation for the results found in the prior analyses. To control for this possible alternative explanation, the following OLS regression is used:

Full target: $(A_t - T_t) / T_t = \alpha + \beta_1 \{(A_{t-1} - T_{t-1}) / T_{t-1}\} + \beta_2 BELOW_{t-1} + \beta_3 BELOW_{t-1}$

$\{(A_{t-1} - T_{t-1})/T_{t-1}\} + \beta_3 AQ + \beta_3 AQ * \{(A_{t-1} - T_{t-1})/T_{t-1}\}$

Any target: Variable $(A_t > 0) = \alpha + \beta_1$ Variable $(A_{t-1} > 0) + \beta_2$ Dummy $(A_{t-1} = 0) +$

β_3 Dummy $(A_{t-1} = 0)$ * Variable $(A_{t-1} > 0) + \beta_4 AQ + \beta_5 AQ$ * Variable $(A_{t-1} > 0)$ + year dummies + industry effects + ε

This is the same OLS regression used in the first robustness check for individual performance evaluation, but in this case the accounting quality (AQ) of firms is checked. Contradictory to Indjejikian and Nanda (2002), who use the accrual method, I use the accounting quality of firms to check for the possibility of income smoothing (Easton, Yuping, van Lent, 2008).[25] If the accounting quality is low, there is an indication of earnings management.

Table 21 described the robustness check for the situation where executives has to reach any bonus. The individual performance evaluation is not statistically significant related to the executives actual bonus in the current year, meaning this is not an alternative explanation (Indjejikian and Nanda, 2002). The accounting quality variable is significant, which indicates that executives performance smoothing is related to the executives actual bonus. However, the relationship between the current and last years' bonus remains positive and significant, which indicates that the results are robust for earnings management although it seems related to the abnormal bonuses.

The other analyses from table 21, describes that the relationship between the executives' current bonus and the accounting quality is statistically significant. Even after controlling for the different companies in the sample, this fixture remains significant and positive[26]. The results from this analyses indicate that the relation between the current bonus and the lagged bonus is robust against performance smoothing, although the variables seems to be related to each other.

[25] The accounting quality variables are further explained in appendix K.
[26] Stated in appendix L.

Table 21: Robustness tests for persistence in executives' any target bonus percentages, subjective individual performance evaluation and accounting quality.[27]

Variables	**Any target**	
	IPE	**AQ**
Interceptive	1,345***	1,112***
	(6,324)	(6,142)
Variable (A_{t-1} > 0)	**0,531*** **	**0,396*** **
	(7,397)	**(10,405)**
Dummy (A_{t-1} = 0)	-0,045	-0,246
	(-0,212)	(-1,360)
Variable (A_{t-1} > 0) * Dummy (A_{t-1} = 0)	Excluded	Excluded
IPE	-0,451**	–
	(-2,230)	
IPE * Variable (A_{t-1} > 0)	0,022	–
	(0,244)	
AQ	–	-1,143***
		(-7,657)
AQ * Variable (A_{t-1} > 0)	–	0,868***
		(25,875)
F	32,848***	152,409***
Adj. R2	0,404	0,845

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

The results from table 22, indicate that the individual performance evaluation is not correlated to the executives' abnormal bonus for the full target (100%) situation. In this case, the result are not affected after controlling for the firms' use of individual performance evaluation (Indjejikian and Nanda, 2002). The full target (50%) situation reveals different results after controlling for the firms' individual performance evaluation, because the variable is negatively significant correlated to the executives' abnormal bonus. So, in this case the

[27] This analyses includes year and industry dummies, but they are not included in the table. Extra analyses stated in appendix L.

results are related to the firm's tendency to pay subjective or discretionary bonuses although the relation between the abnormal target bonus this year and last year remains positive and statistically significant. However, after controlling for all the companies in the sample data, the relation between the individual performance evaluation variable and the abnormal target bonus at 50 percent does not hold anymore, suggesting there is no relation between individual performance evaluation and abnormal target bonuses.[28]

Table 22: Robustness tests for persistence in executives' abnormal bonus percentages, subjective individual performance evaluation and accounting quality.[29]

Variables	**Full target (100%)**		**Full target (50%)**	
	IPE	**AQ**	**IPE**	**AQ**
Interceptive	0,156 (0,995)	-0,121 (-0,566)	-0,026 (-0,142)	-0,379* (-2,231)
{($A_{t-1} - T_{t-1}$)/ T_{t-1}}	**0,409***** **(6,357)**	**0,740***** **(10,730)**	**0,529***** **(7,809)**	**0,463***** **(7,208)**
$BELOW_{t-1}$	-0,291 (-1,427)	-1,184*** (-3,567)	-0,309 (-1,337)	0,436 (1,562)
$BELOW_{t-1}$ {($A_{t-1} - T_{t-1}$)/ T_{t-1}}	-0,124 (-0,450)	-2,104*** (-5,045)	-0,547* (-1,673)	-0,171 (-0,481)
IPE	-0,132 (-1,171)	–	-0,251* (-1,792)	–
IPE {($A_{t-1} - T_{t-1}$)/ T_{t-1}}	-0,071 (-0,794)	–	-0,165* (-1,867)	–
AQ	–	-0,514** (-2,516)	–	-0,440 (-2,351)
AQ {($A_{t-1} - T_{t-1}$)/ T_{t-1}}	–	0,269*** (6,566)	–	1,772*** (10,280)
F	11,529***	22,790***	14,464***	26,324***
Adj. R2	0,281	0,574	0,329	0,600

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

[28] Extra analyses stated in appendix L.
[29] This analyses includes year and industry dummies, but they are not included in the table.

Furthermore, table 22 describes that performance smoothing is significant related to the executives abnormal target bonus, both at 50 and 100 percent. After controlling for the companies in the sample, this relationship does still hold. The results from table 22, indicate that the relation between the executives' current abnormal target bonus and their lagged abnormal target bonus is robust against performance smoothing, although the variables seems to be related to each other.

Overall, the results from the robustness check confirms that the likelihood that an executives will achieve his performance targets is not independent on his past performance. This can be concluded, because although most of the alternative explanations are significant related to the abnormal target bonuses, the relations between the abnormal bonuses remains statistically significant. These findings confirm the second and third analyses (Indjejikian and Nanda, 2002).

5. Conclusion and discussion

The bonus payments of executives of banks in the Netherlands are increasingly criticized. This thesis studies the target difficulty of objectives set for executive bank managers, which is a key component of management control systems. I make use of a small sample of 25 banks, which includes 639 individual executive remuneration data.

I find that the determinants of target bonuses are overall consistent with the implications made by Indjejikian and Nanda (2002), which are based on the principal-agency theory. The executives' target bonus is negatively related to the noise in accounting performance measures, in accordance to former research including Holstrom (1997), Larcker (1987) and Holthausen et al. (1995a). The growth opportunities of the firm are positively related to the executives' target bonus, according to Smith and Watts (1992) and Graver and Graver (1993). At last, the executives' target bonus is positively related to their decision-making authority with respect to the logarithm of sales, generally consistent with Pendergast (2001) and Nagar (2002).

By using additional tests, not included in the investigation of Indjejikian and Nanda (2002), I find that the fixed remuneration of executives grew negatively for the years 2005 to 2009, contradictory to research done by the CPB in the Netherlands. But in the year 2010, a large growth percentage towards the level of 2006 is measured. A decrease in fixed remuneration can be explained by the growth in the variable remuneration, according to research done by the Rotterdam School of Management (2009). Furthermore, the growth data shows a large decrease in variable payments for the year 2008, due to the financial crisis in the Netherlands. Hence, the current total income of bank managers is on average higher than what is was during the financial crisis.

Indjejikian and Nanda (2002) study the likelihood that executives have to reach their targets, dependent on the performance last year. In the second additional analyses I find that the likelihood of executives to reach their target not dependent on the performance last year, varies largely from year to year. For any target, the chance varies from 97,5 percent in 2005 to 41,4 percent in 2009. The percentages for the years 2005 until 2007 are above the "normal" percentage of 80 percent found by Merchant and Manzoni (1989) and the Controller Institute, suggesting that executives have a large chance to reach any target bonus. The results for the full targets vary from 19,1 percent in 2008 to 75,3 percent in the year 2006, suggesting that executives have a relatively large chance to reach their full targets in the years before the

crisis, although it is not near the average of 80 percent (for any target). Also I find an increase in the likelihood after the year 2008, which can be explained by the recovering of the financial situation.

Target bonuses are linked to an executives performance, according to the bonus scheme created by Murphy (2001)[30]. The link between the executives' performance standards and the target bonuses is used to investigate the difficulty of achieving executives performance targets. Overall I find that the executives are more likely to achieve their target bonus if they received an above-target bonus in the prior year. The results from the analyses suggests that the executives' target bonuses are not independent upon each other and therefore the firms do not fully adjust performance standards to reflect the executives past performance (Indjejikian and Nanda, 2002). I also find that the likelihood to achieve any and the full target bonus increases towards 90 percent if the year 2008 is excluded from the sample. This assumes that executives' target bonus is not difficult to reach.

The evidence from the second analyses is further explained by the OLS regression of the abnormal target bonuses. Overall the relation between the executives' current abnormal target bonus is positively related to the lagged abnormal bonus target and the beta's significantly differ from zero, meaning that the abnormal bonuses are serially correlated. This suggests that the executives' abnormal target bonuses are not independent on the abnormal target bonuses last year. These findings are generally consistent with former research done by Indjejikian and Nanda (2002).

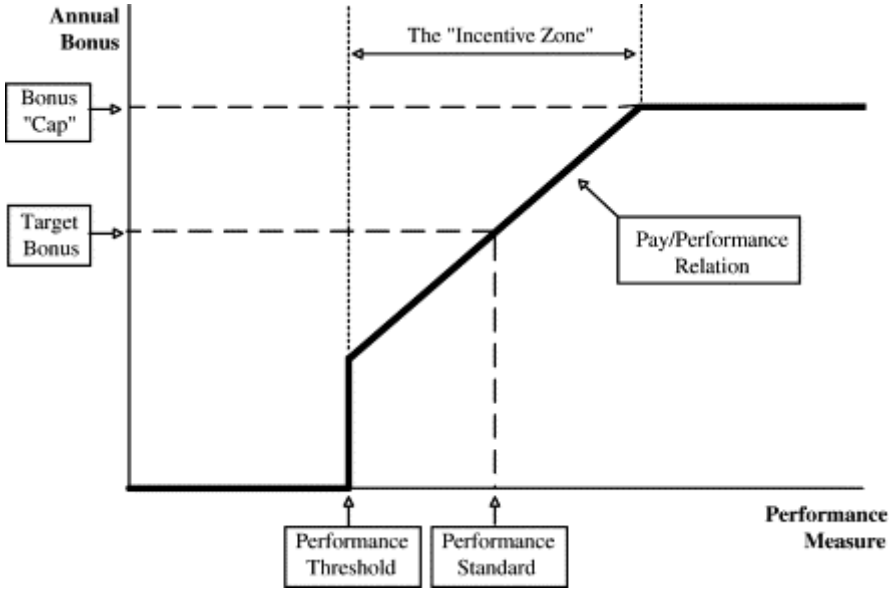
My study is subject to a number of limitations, however most are controlled for in the analyses. One such limitation to this study is the use of the target bonuses, to explain the relationship between the actual bonuses and the performance standards. This is necessary due to the lack of performance measure data from the companies in my sample. Murphy (2001) explained the relation between target bonuses and performance measures, meaning that the inferences made in my study are valid in the cases the targets are matched to performance[31] (Indjejikian and Nanda, 2002). Another limitation is the use of fictitious targets for a large number of executives, because the remuneration reports do not include the real targets and performance data in most cases. Although the targets of most executives are not presenting the reality, they still form a useful benchmark.

[30] Annual bonus plan stated in appendix A.
[31] Stated in figure 1 from appendix A.

The robustness check investigated the possibility of alternative explanations for the investigated relation between the current executives' target bonuses and the lagged target bonuses. Overall I find that the results are robust to alternative explanations such as performance smoothing and the subjective or discretionary executives' target bonuses. So, I believe this study will provide new important insides on the achievability of target bonuses for executives of banks in the Netherlands.

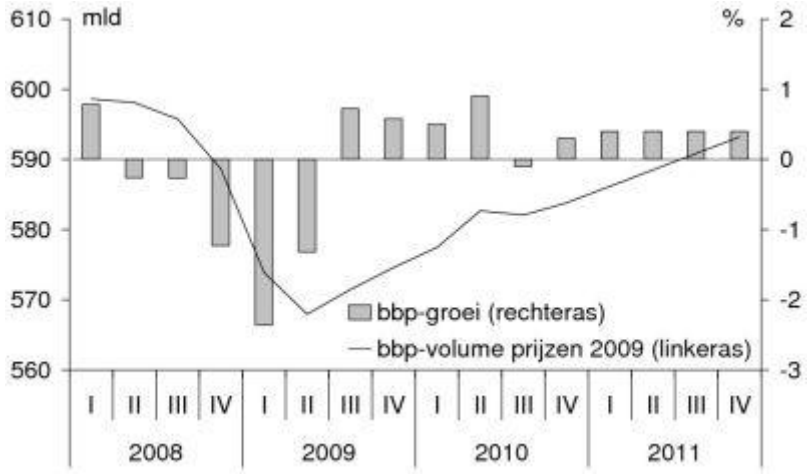
Appendix A.

Components of a typical annual bonus plan (Murphy, 2001):



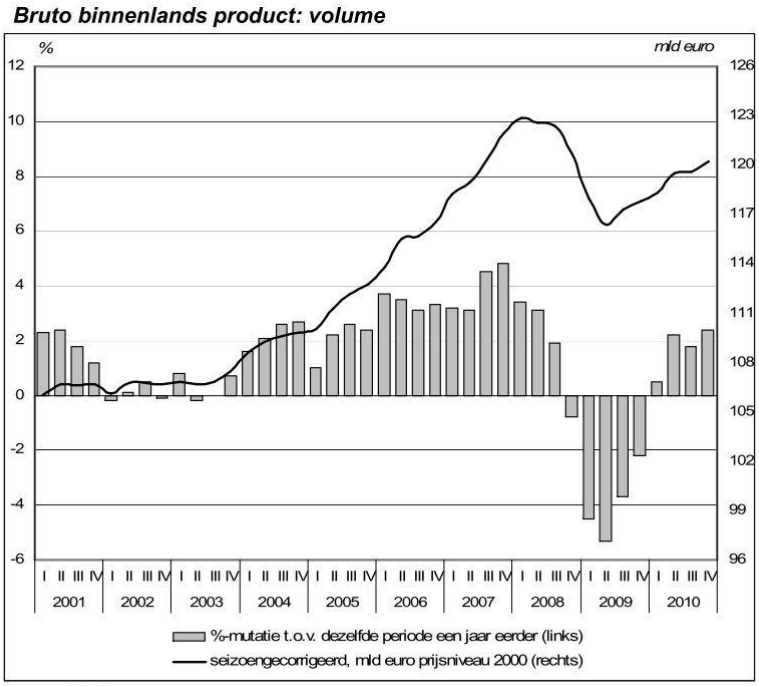
Appendix B.

More specific growth of the economy in the Netherlands for the years 2008 to 2011 (CPB):



What is shown in this chart, is that economy did shrink in the years 2008 and 2009.

Growth of the economy in the Netherlands for the years 2001 to 2010 (CPB):



Bron: CBS

Appendix C.

Company data:

-Year	-Logarithm sales
-Bank	-Cash
-Net income	-Depreciation
-Stockholders' equity	- Variance of stock return*
-Return on equity (ROE)	-Logarithm of variance of stock return*
-Variance of ROE*	-Market to book ratio
-Sales	-Stock return

*Amount for all the company years together

Executive data:

-Year
-Bank
-Executive name
-Basic salary
-Variable remuneration (short term)
-Variable remuneration (long term)
-Target
-Maximum bonus
-Individual target
-Bank or group organization

Appendix D.

Banks that were originally included, but due to a lack of useful data or because they are a part of another Parent Company in the list stated above, that are excluded:

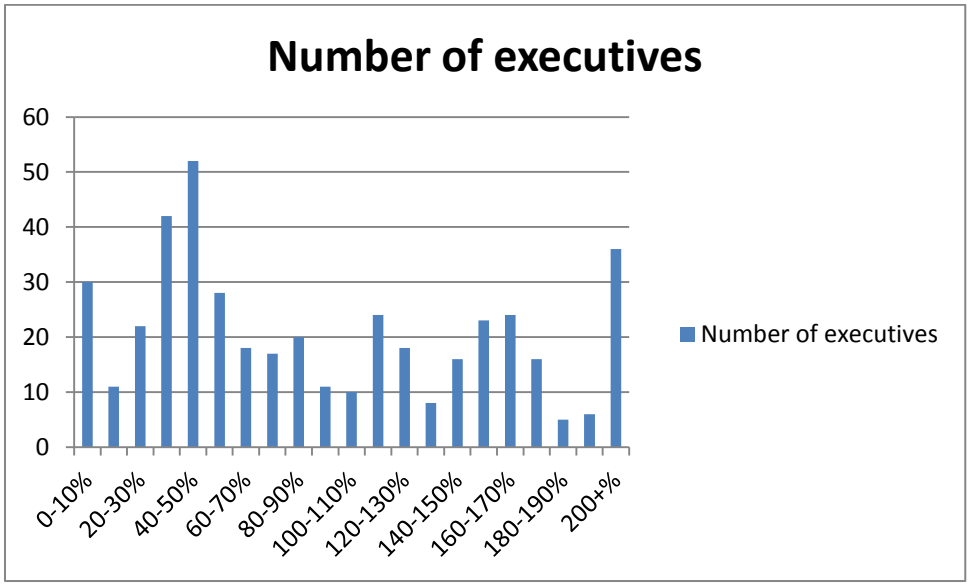
-Akbank*
-Alex**
-Amsterdam Trade Bank*
-AnadoluBank*
-Bank Insigner de Beaufort**
-Bank Ten Cate*
-CenE Bankiers**
-Crediam**
-DHB Bank*
-DirektBank**
-Effectenbank Stroeve**
-Florius**
-GarantiBank*
-Hollandse Bank Unie**
-Hypotrust*
-Kempen**
-Leaseplan Bank*
-MoneYou**
-Nationale Nederlanden**
-OHRA Bank**
-Regio Bank**
-Santander*
-Schretler**
-Staalbankiers**
-Theodoor Gilissen Private Bankers*
-Westland Utrecht Hypotheekbank*
-Yapi Kredi Bank*

*No data available about the remuneration.

**Part of another Bank (the parent company), so indirectly included.

Appendix E.

The figure of the division of the executives' bonuses:



Appendix F.

Indjejikian and Nanda (2002) state that:

H_1: $Pr(A_t \geq T_t \mid A_{t-1} \geq T_{t-1}) = Pr(A_t \geq T_t \mid A_{t-1} < T_{t-1})$

H_0: $Pr(A_t \geq T_t \mid A_{t-1} \geq T_{t-1}) \neq Pr(A_t \geq T_t \mid A_{t-1} < T_{t-1})$

Where,

- Pr = chance or likelihood.
- $A_t \geq T_t \mid A_{t-1} \geq T_{t-1}$ = the current actual bonus is larger than the current target bonus, under the condition that the actual bonus last year is *larger* than the target bonus last year.
- $A_t \geq T_t \mid A_{t-1} < T_{t-1}$ = the current actual bonus is larger than the current target bonus, under the condition that the actual bonus last year is *smaller* than the target bonus last year.

The meaning of $Pr(A_t \geq T_t \mid A_{t-1} \geq T_{t-1}) = Pr(A_t \geq T_t \mid A_{t-1} < T_{t-1})$: is that the likelihood that the current actual bonus is larger than the current target bonus, under the condition that the actual bonus last year is larger than the target bonus last year is equal to the likelihood that the current actual bonus is larger than the current target bonus, under the condition that the actual bonus last year is smaller than the target bonus last year. In this case, an executive has a likelihood of receiving his target bonus that is equal to the likelihood he has of not receiving his target bonus. So, in this case the target bonus is independent on the performance of the executive last year.

Appendix G.

Other conditions that will be also included in the appendixes:

1. All data.
2. All data, less the zero's and the year 2008. An extra check for the year 2008, which is suggested to have a large impact on the results, due to the introduction of the financial crisis in the Netherlands.
3. All data less the unknown target data. Check for the executives, for whom the targets are not fictitious.

Appendix H.

In this appendix, the results under the extra conditions are stated for the tests of the extra hypotheses of the second hypotheses. The results for the likelihood that executives reached their full target, independent on the past performance.

Table 1 of appendix H: The likelihood that an executive reaches his full target (100%), <u>using all data.</u>

$A_t = 0$	$A_t \geq 0$
380 (60,2%)	251 **(39,8%)**

Table 2 of appendix H: The likelihood that an executive reaches his full target (50%), using all data.

$A_t = 0$	$A_t \geq 0$
357 56,6%	274 **(43,4%)**

Table 3 of appendix H: The likelihood that an executive reaches his full target (100%), using all data less the zero's and the year 2008.

$A_t = 0$	$A_t \geq 0$
142 (36,4%)	248 **(63,6%)**

Table 4 of appendix H: The likelihood that an executive reaches his full target (50%), using all data less the zero's and the year 2008.

$A_t = 0$	$A_t \geq 0$
125 (32,1%)	265 **(67,9%)**

Table 5 of appendix H: The likelihood that an executive reaches any target, using only the data that includes non-fictitious targets for executives.

$A_t = 0$	$A_t \geq 0$
193 (51,6%)	181 **(48,4%)**

Table 6 of appendix H: The likelihood that an executive reaches his full target, using only the data that includes non-fictitious targets for executives less the year 2008.

$A_t = 0$	$A_t \geq 0$
106 (28,3%)	268 **(71,7%)**

Table 7 of appendix H: The likelihood that an executive reaches any target, using all data less the year 2008.

$A_t = 0$	$A_t \geq 0$
131 (25,1%)	390 **(74,9%)**

Appendix I.

In this appendix, the results under the extra conditions are stated for the tests of the second hypotheses.

Table 1 of appendix I: Frequency distribution of the likelihood that executives has to reach their full target (of 100% fixed salary) in two consecutive years, using all data.

		$A_t < T_t$	$A_t \geq T_t$
Total %	$A_{t-1} < T_{t-1}$	47,88%	8,73%
Row %		84,58%	**15,42%**
Total %	$A_{t-1} \geq T_{t-1}$	16,98%	26,42%
Row %		39,13%	**60,87%**

Z-statistic = 9,716 (p-value = 0,000)

Table 2 of appendix I: Frequency distribution of the likelihood that executives has to reach their full target (of 50% fixed salary) in two consecutive years, using all data.

		$A_t < T_t$	$A_t \geq T_t$
Total %	$A_{t-1} < T_{t-1}$	41,98%	9,91%
Row %		80,91%	**19,09%**
Total %	$A_{t-1} \geq T_{t-1}$	19,58%	28,54%
Row %		40,69%	**59,31%**

Z-statistic = 8,507 (p-value = 0,000)

Table 3 of appendix I: Frequency distribution of the likelihood that executives has to reach their full target (of 100% fixed salary) in two consecutive years, using all data less the zero's and the year 2008.

		$A_t < T_t$	$A_t \geq T_t$
Total %	$A_{t-1} < T_{t-1}$	31,36%	15,68%
Row %		66,67%	**33,33%**
Total %	$A_{t-1} \geq T_{t-1}$	7,63%	45,34%
Row %		14,40%	**85,60%**

Z-statistic = 8,347 (p-value = 0,000)

Table 4 of appendix I: Frequency distribution of the likelihood that executives has to reach their full target (of 50% fixed salary) in two consecutive years, using all data less the zero's and the year 2008.

		$A_t < T_t$	$A_t \geq T_t$
Total %	$A_{t-1} < T_{t-1}$	23,73%	17,37%
Row %		57,73%	**42,27%**
Total %	$A_{t-1} \geq T_{t-1}$	11,02%	47,88%
Row %		18,71%	**81,29%**

Z-statistic = 6,259 (p-value = 0,000)

Table 3 of appendix I: Frequency distribution of the likelihood that executives has to reach their full target in two consecutive years, using all data that includes non-fictitious targets for executives.

		$A_t < T_t$	$A_t \geq T_t$
Total %	$A_{t-1} < T_{t-1}$	28,00%	8,73%
Row %		76,24%	**23,76%**
Total %	$A_{t-1} \geq T_{t-1}$	29,09%	34,18%
Row %		45,98%	**54,02%**

Z-statistic = 4,888 (p-value = 0,000)

Table 4 of appendix I: Frequency distribution of the likelihood that executives has to reach any target in two consecutive years, <u>using all data less the year 2008.</u>

		$A_t < T_t$	$A_t \geq T_t$
Total %	$A_{t-1} < T_{t-1}$	19,39%	10,61%
Row %		64,65%	**35,35%**
Total %	$A_{t-1} \geq T_{t-1}$	9,09%	60,91%
Row %		12,99%	**87,01%**

Z-statistic = 9,528 (p-value = 0,000)

Extra table 1 of appendix I: Frequency distribution of the likelihood that executives has to reach any target and their full target (both 100% and 50% of fixed salary) in two consecutive years for each year, <u>using all data for full target</u>.

Year	**Any target**		**Full target (100%)**		**Full target (50%)**	
	P (At ≥ 0 | At-1 < 0)	**P (At ≥ 0 | At-1 ≥ 0)**	P (At ≥ Tt | At-1 ≥ Tt-1)	**P (At ≥ Tt | At-1 < Tt-1)**	P (At ≥ Tt | At-1 < Tt-1)	**P (At ≥ Tt | At-1 ≥ Tt-1)**
2010	54,17%***	**91,67%***	19,70%***	**85,71%***	18,75%***	**82,61%***
2009	20,45%***	**51,16%***	17,07%	**0,00%**	18,75%	**40,00%**
2008	0,00%***	**46,51%***	0,00%**	**9,09%****	2,78%*	**13,11%***
2007	0,00%***	**97,50%***	23,81%***	**83,33%***	26,09%***	**77,42%***
2006	0,00%***	**98,55%***	10,53%***	**84,62%***	47,06%***	**81,48%***

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

Extra table 2 of appendix I: Frequency distribution of different target bonuses, where the zero's are excluded less the year 2008.

Bonus Percentage	**Bonus target interval**	
	P (At ≥ Tt | At-1 < Tt-1)	**P (At ≥ Tt | At-1 ≥ Tt-1)**
10%	69,77%***	**97,42%*** **
20%	67,39%***	**97,38%*** **
30%	60,38%***	**94,57%*** **
40%	49,33%***	**95,68%*** **
50%	38,75%***	**91,08%*** **
60%	20,39%***	**91,04%*** **
70%	24,35%***	**89,34%*** **
80%	21,26%***	**92,73%*** **
90%	15,56%***	**92,16%*** **
100%	16,43%***	**90,72%*** **
110%	16,89%***	**92,13%*** **
120%	21,34%***	**91,78%*** **
130%	19,65%***	**87,50%*** **
140%	18,97%***	**80,95%*** **
150%	14,77%***	**78,69%*** **
160%	14,44%***	**62,00%*** **
170%	11,06%***	**55,26%*** **
180%	6,70%***	**53,57%*** **
190%	5,24%***	**51,85%*** **
200%	3,77%***	**44,00%*** **

*Significant at 10%, **Significant at 5%, *** Significant at 1%

Appendix J.

Table 1 of appendix J: OLS regression of persistence in executives abnormal bonus, the regression for the likelihood an executive has to reach his full target, both at 100% and 50%, using all data.

Variables	**Full target (100%)**		**Full target (50%)**	
Interceptive	-0,262***	-0,364***	-0,224***	-0,249*
	(-3,812)	(-2,976)	(-2,651)	(-1,930)
{($A_{t-1} - T_{t-1}$)/ T_{t-1}}	**0,738*** **	**0,913*** **	**0,647*** **	**0,611*** **
	(12,973)	**(14,953)**	**(12,462)**	**(12,251)**
$BELOW_{t-1}$	-0,064	0,153	-0,115	-0,043
	(-0,470)	(1,428)	(-0,707)	(-0,278)
$BELOW_{t-1}$ {($A_{t-1} - T_{t-1}$)/ T_{t-1}}	-0,291*	-0,282***	-0,289	-0,221
	(-1,831)	(-5,591)	(-1,554)	(-1,194)
Dummy 2010		0,137		0,000
		(1,299)		(0,002)
Dummy 2009		Excluded		-0,145
				(-0,908)
Dummy 2008		-0,450***		-0,605***
		(-4,078)		(-4,485)
Dummy 2007		0,250**		Excluded
		(2,149)		
Dummy 2006		0,509***		0,498***
		(4,100)		(3,431)
Dummy 2005		Excluded		Excluded
Industry effects		0,114		0,156*
		(1,576)		(1,654)
F	105,526***	62,681***	90,930***	47,555***
F test($\beta_1 + \beta_3 \neq 0$)	35,480***	48,657***	79,660***	77,421***
Adj. R2	0,429	0,541	0,389	0,468

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

Extra table 1 of appendix J: OLS regression of persistence in executives bonus, the regression for the likelihood an executive has to reach any target, both at 100% and 50%, where dummies are added for every company (not shown in table).

Variables	**Any target**	
Interceptive	0,511***	3,495***
	(3,907)	(10,235)
Dummy ($A_{t-1} > 0$)	**0,566*** **	**0,200*** **
	(10,498)	**(2,917)**
Dummy ($A_{t-1} = 0$)	-0,281	-0,262
	(-1,403)	(-1,084)
Dummy ($A_{t-1} > 0$) * Dummy ($A_{t-1} = 0$)	Excluded	Excluded
Dummy 2010		-0,985***
		(-3,892)
Dummy 2009		-1,289***
		(-5,575)
Dummy 2008		-1,690***
		(-8,413)
Dummy 2007		Excluded
Dummy 2006		-0,702***
		(-3,265)
Dummy 2005		Excluded
Industry effects		Excluded
F	82,225***	14,470***
F test($\beta_1 + \beta_3 \neq 0$)	-	-
Adj. R2	0,277	0,489

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

Extra table 2 of appendix J: OLS regression of persistence in executives abnormal bonus, the regression for the likelihood an executive has to reach his full target, both at 100% and 50%, where the zero's are excluded and dummies are added for every company (not shown in table).

Variables	**Full target (100%)**		**Full target (50%)**	
Interceptive	0,174**	0,190***	0,178	0,703***
	(2,089)	(1,084)	(1,745)	(3,234)
$\{(A_{t-1} - T_{t-1})/ T_{t-1}\}$	**0,388*** **	**0,365*** **	**0,467*** **	**0,356*** **
	(7,362)	**(5,882)**	**(8,674)**	**(6,029)**
$BELOW_{t-1}$	-0,265	0,013	-0,229	0,055
	(-1,374)	(0,057)	(-1,003)	(0,221)
$BELOW_{t-1}$ $\{(A_{t-1} - T_{t-1})/ T_{t-1}\}$	-0,072	-0,421	-0,327	-0,413
	(-0,285)	(-1,271)	(-1,106)	(-1,118)
Dummy 2010		0,004		-0,358
		(0,021)		(-1,442)
Dummy 2009		-0,505**		-1,004***
		(-2,031)		(-3,478)
Dummy 2008		-0,277		-0,687***
		(-1,432)		(-3,069)
Dummy 2007		Excluded		-0,447***
				(-2,636)
Dummy 2006		0,184		Excluded
		(1,212)		
Dummy 2005		Excluded		Excluded
Industry effects		Excluded		Excluded
F	34,543***	5,286***	37,139***	7,467***
F test($\beta_1 + \beta_3 \neq 0$)	11,196***	6,929***	37,736***	18,358***
Adj. R2	0,272	0,315	0,283	0,405

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

Appendix K.

Variables used to represent accounting quality (AQ):

Revenue/Cash: the negative of the difference of sales to cash flow from operation. Holding the level of cash flows constant, higher revenues are more likely the outcome of aggressively recognizing sales. Negative values indicate that firms have a lower accounting quality (Easton, Yuping, van Lent, 2008).

Because operating cash flows fluctuate heavily, I adapted this accounting quality ratio to:

$$\Delta\text{Cash}/\Delta\text{Revenue} = \frac{\text{(cash flow at time t – cash flow at time t-1)}}{\text{(revenue at time t – revenue at time t-1)}}$$

If the ratio is smaller than 1, the accounting quality is low. This is a sign of earnings management and therefore performance smoothing.

Appendix L.

Table 1 of appendix L: Robustness tests for persistence in executives' any target bonus percentages, subjective individual performance evaluation and accounting quality, using all company dummies.

Variables	**Any target**	
	IPE	**AQ**
Interceptive	2,001*** (4,344)	2,725*** (12,612)
Variable (A_{t-1} > 0)	**0,214*** (2,782)**	**0,203** (4,783)**
Dummy (A_{t-1} = 0)	0,204 (0,835)	-0,135 (-0,692)
Variable (A_{t-1} > 0) * Dummy (A_{t-1} = 0)	Excluded	Excluded
IPE	-0,435 (-1,406)	–
IPE * Variable (A_{t-1} > 0)	-0,034 (-0,314)	–
AQ	–	-1,158*** (-6,751)
AQ * Variable (A_{t-1} > 0)	–	0,889*** (26,563)
F	13,744***	106,335***
Adj. R2	0,491	0,894

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

Table 2 of appendix L: Robustness tests for persistence in executives' abnormal bonus percentages, subjective individual performance evaluation and accounting quality, using all company dummies.

Variables	**Full target (100%)**		**Full target (50%)**	
	IPE	**AQ**	**IPE**	**AQ**
Interceptive	0,179 (0,649)	-0,421*** (-2,678)	0,889** (2,573)	-0,140*** (-0,548)
{($A_{t-1} - T_{t-1}$)/ T_{t-1}}	**0,355*** **(4,972)**	**0,890*** **(12,037)**	**0,395*** **(5,348)**	**0,483*** **(6,016)**
$BELOW_{t-1}$	-0,012 (0,047)	-0,699** (-2,384)	0,022 (0,087)	0,444 (1,416)
$BELOW_{t-1}$ {($A_{t-1} - T_{t-1}$)/ T_{t-1}}	-0,425 (-1,217)	-1,255*** (-2,703)	-0,522 (1,283)	-0,186 (-0,342)
IPE	-0,004 (-0,016)	–	-0,119 (-0,417)	–
IPE {($A_{t-1} - T_{t-1}$)/ T_{t-1}}	0,035 (0,292)	–	-0,087 (-0,814)	–
AQ	–	-0,969*** (-4,174)	–	-0,437* (1,834)
AQ {($A_{t-1} - T_{t-1}$)/ T_{t-1}}	–	0,356*** (8,677)	–	1,973*** (9,735)
F	4,909***	20,280***	6,979***	14,425***
Adj. R2	0,310	0,714	0,403	0,625

*** = significant at 0,01; ** = significant at 0,05; * = significant at 0,1.

Appendix M.

Table 1 of appendix M: Executives that earn a bonus above 100% base salary, in the year 2010.

$A_t \leq 100\%$	**$A_t > 100\%$**
71 (70,3%)	30 (29,7%)

Table 2 of appendix M: Executives that earn a bonus above 100% base salary, in the year 2009.

$A_t \leq 100\%$	$A_t > 100\%$
97 (76,4%)	30 (23,6%)

Companies where managers receive a bonus, that is more than 100% base salary:

- Deutsche Bank, mother company of the Hollandse Bank Unie, from Germany.
- Kas Bank, from the Netherlands.
- Bank of Scotland, from Scotland.
- BNP Paribas, mother company of The Economy Bank, from France.
- Allianz, from Germany.
- ABN AMRO, from the Netherlands.
- Robeco, from the Netherlands

All managers that received a bonus above 100% are foreigners, except for two executives of Kas Bank (101%) and one of Robeco. The executive that received a bonus above 100% at ABN AMRO, is from the United States of America. So, the real percentage that did not receive a bonus above 100% of base salary is nearly 100%.

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