

**ERASMUS UNIVERSITY ROTTERDAM**

**ERASMUS SCHOOL OF ECONOMICS**

**MSc Economics & Business**

**Master Specialisation Financial Economics**

**Sustainability targets in executive remuneration:**

An analysis of the contribution of sustainability targets in  
executive remuneration to sustainable development

**Author:** S.B.M. Rosendaal

**Student number:** 303805

**Thesis supervisor:** Dr. K.E.H. Maas

**Date:** August 11, 2011

## **PREFACE AND ACKNOWLEDGEMENTS**

Over the last six months I have analysed sustainability targets in executive remuneration. This thesis is the final result. It is the conclusion of my MSc in Financial Economics at the Erasmus University Rotterdam.

For the completion of this thesis I owe my gratitude to several people. First of all, I would like to thank Robeco for giving me the opportunity to write a thesis on sustainable remuneration. Also, I would like to thank my colleagues at the Responsible Investing department for all their helpful insights and advice during my internship. In specific, I would like to thank Carola van Lamoen for all her valuable feedback and ideas. She gave me feedback throughout the whole process and always confronted me with critical comments, helping me to improve the quality of my thesis.

Furthermore, I would like to thank my thesis supervisor Karen Maas for her guidance, useful insights and advice. In addition to that, I very much appreciate the feedback I received during her vacation.

Moreover, I would like to thank Ben van Dijk of DSM for making time to discuss the survey. Also, I would like to thank Prof.Dr. Dittmann for providing me with useful insights on incentives in executive remuneration.

Lastly, I would like to thank my friends and family, since they are the ones that mainly experienced the negative sides of the thesis process instead of the positive aspects.

Thank you.

Sanne Rosendaal

Rotterdam, August 2011

#### **NON-PLAGIARISM STATEMENT**

By submitting this thesis the author declares to have written this thesis completely by himself/herself, and not to have used sources or resources other than the ones mentioned. All sources used, quotes and citations that were literally taken from publications, or that were in close accordance with the meaning of those publications, are indicated as such.

#### **COPYRIGHT STATEMENT**

The author has copyright of this thesis, but also acknowledges the intellectual copyright of contributions made by the thesis supervisor, which may include important research ideas and data. Author and thesis supervisor will have made clear agreements about issues such as confidentiality.

Electronic versions of the thesis are in principle available for inclusion in any EUR thesis database and repository, such as the Master Thesis Repository of the Erasmus University Rotterdam

## **ABSTRACT**

This study examines whether targets related to environmental and social issues in executive remuneration in 2010 contribute to sustainable development. Using data on executive remuneration from global survey research, one-sample tests, two-sample tests and multinomial regressions are performed. The evidence indicates that sustainability targets in executive remuneration do contribute to sustainable development. However, we find that executives are not incentivized by a higher percentage of the sustainability target in their remuneration nor are they triggered by a specific focus on short-term or long-term rewards. The inclusion of the target itself is already sufficient to encourage sustainable development. Furthermore, executives in non-European countries are more incentivized to pursue sustainable development than their European counterparts. Lastly, we find no evidence that full-time equivalents affect the degree of sustainable development.

### **Keywords:**

Sustainable remuneration, sustainable development, sustainability targets, executive remuneration

## TABLE OF CONTENTS

PREFACE AND ACKNOWLEDGEMENTS .....	ii
ABSTRACT .....	iv
TABLE OF CONTENTS .....	v
LIST OF TABLES.....	vii
LIST OF FIGURES .....	vii
1    Introduction.....	8
2    Literature review .....	10
2.1    Agency theory.....	10
2.2    Remuneration schemes.....	10
2.3    The general link between remuneration and sustainable development .....	12
2.4    The explicit link between remuneration and sustainable development .....	13
2.5    Conclusion.....	15
3    Methodology .....	17
3.1    Conceptual framework and hypotheses.....	17
3.2    Research design .....	18
3.3    Operational definition .....	18
3.3.1    Sustainable remuneration .....	18
3.3.2    Sustainability targets.....	18
3.3.3    Sustainable development.....	19
3.3.4    Control variables .....	19
3.4    Survey design.....	20
3.4.1    Pilot test .....	21
3.4.2    Electronic survey .....	21
3.5    Qualitative analysis .....	21
3.6    Quantitative analysis .....	22
3.6.1    Descriptive statistics .....	22
3.6.2    One-sample tests.....	22
3.6.3    Two-sample tests .....	22

3.6.4	Multinomial regressions.....	23
3.7	Conclusion.....	25
4	Data .....	26
4.1	Sample.....	26
4.2	Validity.....	27
4.2.1	Internal validity .....	27
4.2.2	External validity .....	28
4.3	Conclusion.....	29
5	Results .....	30
5.1	Qualitative analysis .....	30
5.2	Quantitative analysis .....	32
5.2.1	Descriptive statistics .....	32
5.2.2	One-sample tests.....	39
5.2.3	Two-sample tests .....	40
5.2.4	Multinomial regressions.....	41
5.3	Conclusion.....	49
6	Discussion.....	50
6.1	Interpretation results.....	50
6.1.1	Observations from the data .....	50
6.1.2	Improvement of sustainable development.....	53
6.1.3	The difference in sustainable development between short-term and long-term targets....	54
6.1.4	The effect of the percentage of the target on sustainable development .....	54
6.2	Limitations.....	56
6.3	Possible extensions .....	57
6.4	Conclusion.....	57
7	Conclusion .....	59
	REFERENCES .....	61
	TABLES AND FIGURES .....	64
	APPENDIX 1 .....	65

## **LIST OF TABLES**

Table 1 - Sub-models multinomial logistic regression.....	24
Table 2 - Frequency sustainable remuneration per country - annual reports .....	30
Table 3 – Frequency percentages sustainable remuneration and sustainability targets of total remuneration - survey.....	33
Table 4 - Frequency sustainable remuneration and average sustainable development per country - survey .....	34
Table 5 - Frequency sustainable remuneration and average sustainable development per industry - survey .....	35
Table 6 - Frequency sustainability targets and average sustainable development - survey .....	36
Table 7 - Results one-sample median test .....	39
Table 8 - Results one-sample t-test.....	40
Table 9 - Results Wilcoxon rank-sum test .....	40
Table 10 - Results independent two-sample t-test .....	41
Table 11 - Multinomial logistic regression .....	43
Table 12 - Multinomial probit regression .....	48
Table 13 - Frequency of invitations per LinkedIn group .....	64

## **LIST OF FIGURES**

Figure 1 - Conceptual framework.....	17
Figure 2 - Percentage of application of combined and social targets per country - annual reports .....	31
Figure 3 - Frequency short-term and long-term sustainability targets - survey.....	37
Figure 4 - Average development short-term and long-term sustainability targets - survey .....	38

## 1 Introduction

*“The perception of society is that days of large, short-term financially based bonuses are gone.”<sup>1</sup>*

Traditionally, executive remuneration mainly focused on financial performance. However, an increasing amount of organizations and companies acknowledge the need for the inclusion of sustainability targets in executive remuneration. Firstly, organizations such as The Dutch Association for Investors for Sustainable Development (VBDO), DHV & Hay Group (2010) encourage companies to include sustainability targets in executive remuneration. Secondly, CEOs also believe that incorporating sustainability targets is one of the most effective methods to improve sustainable development (Accenture & United Nations Global Compact 2010).

As the trend towards more sustainability targets in executive remuneration is a relatively recent one, research in the field of remuneration based on sustainability targets is limited. Although there are some studies that examine the effect of the inclusion of sustainability targets in executive remuneration on the development of these sustainability targets (Berrone & Gomez-Mejia 2009; Cordeiro & Sarkis 2008; Russo & Harrison 2005), these studies, however, mainly focus on environmental targets in remuneration and neglect social targets. This study focuses on both social and environmental targets in executive remuneration in 2010 and the consequent development of the issues related to these targets. More specifically, we aim to answer the research question whether sustainability targets in executive remuneration contribute to sustainable development.

In order to answer the research question, triangulation, a combination of qualitative and quantitative analysis, is used. The qualitative analysis is performed with data of annual reports of 490 listed companies worldwide. This analysis determines the type of targets in sustainable remuneration, which are consequently used in the quantitative analysis. A worldwide survey is conducted among the companies that are found to reward sustainability targets in executive remuneration based on their annual report and among members of LinkedIn who hold a position that is related to (executive) remuneration, sustainability and/or company secretary. By means of a survey, we determine which sustainability targets are most often rewarded and how the sustainability issues related to the targets in sustainable remuneration have developed in 2010. The survey also determines the percentage and time frame of sustainable remuneration.

Three hypotheses are developed to answer the research question. Hypothesis 1 tests whether the type of targets (social, environmental and combined) and the time frame of the target (short-term and long-term) lead to a higher level of sustainable development by means of one-sample tests. Hypothesis 2 tests if there is a significant difference between the sustainable development caused by short-term and long-term

---

<sup>1</sup> Patrick Mallon, field director at Business in the Community on sustainability targets in executive remuneration in *Bonuses: Targets are linked to pay early adopters* Financial Times, June 7, 2011.

sustainability targets with the use of two-sample tests. Lastly, hypothesis 3 tests if a higher percentage of the sustainability target also causes a higher level of sustainable development with the use of multinomial regressions. This regression controls for the continent and full-time equivalents of the company and the type of sustainability target.

This study contributes to academic literature and practice in several aspects. Firstly, current academic literature mainly concentrates on the general link between executive remuneration and sustainable development, while this study focuses on the explicit link of rewarding sustainability targets in executive remuneration and the subsequent sustainable development. Secondly, the limited research that does focus on the explicit link entirely focuses on environmental targets in executive remuneration and the subsequent performance. Social targets and its performance are ignored in the academic literature. This thesis focuses on both social targets and environmental targets in executive remuneration. Thirdly, current research identifies the relationship between sustainable development and sustainability targets in the remuneration of CEOs, plant managers and middle management level in the United States of America (USA). This study concentrates on remuneration for all board executives and does not adopt the narrow focus on CEO remuneration only. Fourthly, the relationship between sustainability targets in CEO remuneration and sustainable development is extended from the USA to a worldwide examination. And finally, it contributes to practice, because the results shed more light on the application of sustainable remuneration and which elements are important in the contribution to sustainable development.

Based on the results we conclude that sustainability targets contribute to sustainable development, however, executives are not incentivized by a higher percentage of sustainable remuneration of total executive remuneration nor by a specific time frame to increase the level of sustainable development. In addition, sustainability targets in remuneration of non-European executives are more likely to cause an increased level of sustainable development than sustainability targets in remuneration of their European counterparts. Furthermore, we find that social targets are more inclined to have an improvement level of sustainable development.

The remainder of this paper is structured as follows: in chapter 2 we present an overview of the existing literature on executive remuneration and the link between executive remuneration and sustainable development. Chapter 3 outlines the hypotheses to be tested in this thesis and the methodology we use. A description of the sample in the analysis and the corresponding validity is given in chapter 4. Thereafter, chapter 5 provides the results of the qualitative analysis of the annual reports and the quantitative analysis of the survey data. We discuss the results in chapter 6 and in chapter 7 final conclusions are drawn.

## **2 Literature review**

This chapter provides an overview of the existing literature on executive remuneration and how it is used to align the interests of executives and shareholders. More specifically, it describes the general and explicit link between sustainable development and executive remuneration.

### **2.1 Agency theory**

Many listed companies face the difficulty of the alignment of the interests of shareholders and executives. Corporate governance addresses this difficulty by the protection of the rights of shareholders (La Porta et al. 2000). More specifically, it deals with the assurance for shareholders to gain from the investment of capital in a firm. Shareholders require managers to create a return in favour of the shareholders (Shleifer & Visney 1997). Agency theory partly covers this assurance by means of the alignment of the interests of shareholders (principals) with the interests of managers (agents). The problem involved in agency theory is to assure that the manager behaves in such a way that shareholders' utility is maximized. If the managers abstain from shareholders' utility maximization, but pursue own utility maximization instead, a principal-agent problem occurs, since the interests of the shareholders and managers do not coincide (Jensen & Meckling 1976). The misalignment of the interests of CEOs and shareholders is perceived as a classical example of the principal-agent problem (Jensen & Murphy 1990b). Managers are often perceived as to create value in the short run, while shareholders prefer value creation in the long run (Lazear 1998). However, it should be in the managers' self-interest to maximize the utility of shareholders, and hence create value in the long run. Bruce et al. (2005) view remuneration packages as a way to approach the principal-agent problem by means of the alignment of interests and adaptation to the incentive sensitivity of managers. Three policies should ensure that executives pursue monetary incentives in the correct way (Jensen & Murphy 1990a); stock ownership, rewards for strong performance by means of salary, bonuses and stock options, and the threat for dismissal. Remuneration schemes adopt these monetary incentives and the inclusion of these incentives is found to increase firm value (Mehran 1995), and hence serve as an appropriate mean to align the interests of shareholders and executives.

### **2.2 Remuneration schemes**

Remuneration schemes intend to align the interests of shareholders and executives by means of monetary incentives. In remuneration schemes, Murphy (1998) distinguishes four types of rewards; base salary, annual bonus, stock options and long term incentives. First of all, the base salary is a fixed reward which is often benchmarked against peer companies. Secondly, the annual bonus is a variable reward subject to short-term performance. Base salary is independent of firm performance, while the annual bonus does depend on firm performance (Finkelstein & Hambrick 1989). Thirdly, stock options give executives the right to buy the stock after a certain period of time. Stock options typically have a vesting period of three

years and the executive should still be employed to exercise the options (Bhagat & Romano 2009). Fourthly and lastly, the long-term incentives trigger the executive to enhance long-term performance. Since stock options are primarily considered as long term incentives in executive remuneration (Deckop et al. 2006), they are referred to as long-term incentives. Hence, a distinction between base salary, annual bonus and long-term incentives is made in executive remuneration throughout this study. This distinction is in line with the classification of Hewitt Associates (2009). The monetary incentives in the remuneration schemes are rewarded by means of cash, stock options and stock ownership. Annual bonuses are primarily rewarded by means of cash bonuses, while long-term incentives are mainly rewarded with equity (Hewitt Associates 2009; VBDO et al. 2010).

In remuneration schemes, cash and equity incentives appear to create different incentives for executives. Cash incentives are found to be less effective in increasing firm value in comparison to incentives related to stock options and stock ownership (Jensen & Murphy 1988). Executives, however, do prefer cash rewards above stock options or stock ownership (Beatty & Zajac 1994). Even though cash incentives are less effective, Jensen & Murphy (1990a) find little evidence that equity incentives enhance firm performance. In later research, Mehran (1995) finds a positive relationship between the amount of equity incentives and firm performance. Also, the amount of stocks holdings of executives improves firm performance. Similarly, Hall & Liabmann (1998) find a positive relationship between CEO remuneration in the form of stock ownership and stock options, and firm performance. Thus, on an incentive level, equity incentives are more effective than cash incentives in the convergence of interests of shareholders and executives.

On a general level, executives' behaviour is also found to diverge from the purpose of pay for performance. Many researchers find evidence against the relationship of incentives and firm performance. Jensen & Murphy (1990a) find a weak link between executive remuneration and corporate performance and subsequently argue that executive remuneration is not about how much executives are paid, but it concerns how they are paid instead. On the one hand, a low fixed payment and high incentive payment could result in resignation and on the other hand, a high fixed payment and too little incentives might disperse the interests of shareholders and executives. Jensen & Murphy (1990a) argue that the design of remuneration schemes is crucial in creating the right incentives. Furthermore, Winter (2010) argues that pay for performance does not work in practice, because executives are stimulated to manipulate and cheat in order to achieve their targets, so the executives' behaviour diverges from the intention of the incentives. In addition, Core et al. (2003) argue that in the creation of incentives in remuneration by means of stock options and ownership, understanding the objectives of shareholders and characteristics of executives are of great importance. Outside wealth of an executive is identified as a characteristic that influences the behaviour of executives towards remuneration incentives (Core & Guay 2010). Thus, due to the complex behaviour of executives and the difficulty in the alignment of shareholders' interests and

executives' incentives, it is found that the purpose of pay for performance and the behaviour of executives often diverge on a general level and a specific incentive level.

### 2.3 The general link between remuneration and sustainable development

Incentives in pay for performance primarily focus on financial performance. Recently, however, performance criteria related to sustainability are also included in remuneration schemes. The Dutch Association for Investors for Sustainable Development (VBDO), DHV & Hay Group (2010), indicate that financial indicators are based on the past and that sustainable indicators are a preparation for the future. Incentives related to financial achievements enhance financial performance and incentives related to sustainability are expected to amplify sustainable development.

Sustainable development is defined by the World Commission on Environment and Development (1987) as "development that meets the needs of the present world without compromising the ability of future generations to meet their own needs." Elkington (1997) approaches sustainable development via 'the triple bottom line'. In order to pursue sustainable development, firms should focus not only on the economic bottom line, but also take the social and environmental bottom lines into account. One way to take social and environmental bottom lines into account is to reward sustainability targets (VBDO, DHV & Hay Group 2010). However, research finds that even without the explicit reward of sustainability targets in executive remuneration, a link between executive remuneration and sustainable development exists.

Using the corporate social and environmental performance as measured by Kinder, Lindenberg and Domini (KLD), McGuire et al. (2003) test the effect of CEO remuneration on social and environmental performance. Social and environmental performance is assessed as either weak or strong, and is measured by means of four dimensions; employee, community, product and environment. The CEO remuneration schemes exist of salaries, annual bonuses and long-term incentives. Moreover, the remuneration schemes do not explicitly include incentives related to the KLD dimensions. The results show that salary and long-term incentives cause weak social and environmental performance, indicating that higher levels of salary and long-term incentives towards financial performance discourage sustainable development.

In addition, Coombs & Gilley (2005) also use the KLD database, but extend the social and environmental performance with a fifth dimension, diversity. They embrace these dimensions under the term stakeholder management, since the dimensions incorporate the majority of stakeholders involved in the business process. In contradiction to McGuire et al. (2003), Coombs & Gilley (2005) test the effect of stakeholder management (social and environmental performance) on CEO remuneration. Again, social and environmental performances are not explicitly included in CEO incentives. The findings are in line with McGuire et al. (2003); overall, a negative effect of stakeholder management on CEO salaries is found, implying that increased stakeholder management results in less salary. However, stakeholder management

is found to have no effect on options and total remuneration. In addition, employee performance has a positive significant effect on bonuses, indicating that improved employee performance results in increased CEO bonuses.

Deckop et al. (2006) extend the research by Coombs & Gilley (2005) by another dimension. As a sixth dimension human rights are added to the indicators for social and environmental performance. In their research, Deckop et al. (2006) examine short-term and long-term incentives in CEO remuneration, and their relationship with social and environmental performance. Evidence is found for a negative short-term relationship and a positive long-term relationship between social and environmental performance, and CEO remuneration. Short-term incentives in CEO remuneration diminish sustainable development, and long-term incentives enhance sustainable development. A possible explanation for the discrepancy between effects of short-term and long-term incentives is that investment in sustainable development is perceived as opportunity cost in the short-term, since investments to increase financial performance could have been done instead (Margolis & Walsh 2003).

More recent research by Benson & Davidson (2010) examines the relationship between CEO remuneration, firm value and stakeholder management over a 12-year period by means of the KLD database. CEO remuneration is found to be unrelated to stakeholder management, however, stakeholder management is positively associated with firm value. Hence, improved stakeholder management does not result in additional CEO remuneration, but does amplify firm value.

Furthermore, in a study by Stanwick & Stanwick (2001) on CEOs of 186 firms in 1990 and 188 firms in 1991, it is found that it does not pay to be green; environmental reputation is negatively related to CEO remuneration. Thus, a CEO is discouraged to improve environmental performance, since it diminishes his remuneration.

Based on prior research, it is found that a general relationship between executive remuneration and sustainable performance often exist, however, evidence shows that this relationship is more often found to be negative rather than positive.

## 2.4 The explicit link between remuneration and sustainable development

The above studies show that the relationship between executive remuneration and sustainable development often displays a negative relationship. The remuneration schemes in the studies above, however, do not explicitly include targets related to sustainability in their remuneration schemes. A study by Accenture & United Nations Global Compact (2010) among nearly 800 CEOs worldwide demonstrates that many CEOs believe that incorporating sustainability into remuneration policies of executives and management is one of the most effective methods to improve sustainable development. In this study, half of the CEOs express to apply sustainable remuneration. Furthermore, 29% of the 300 largest listed companies in Europe include targets related to sustainability in their remuneration schemes

(Eurosif & EIRIS 2010). In the Netherlands, VBDO et al. (2010) encourage Dutch companies to link at least one-third of the variable remuneration to targets related to sustainability and tie at least 60% of the remuneration to long-term incentives. Additionally, CERES (2010) also calls on the inclusion of sustainability targets in executive remuneration and requests the disclosure of the weighting of sustainability targets in annual reports.

Even though the above research reports strongly advocate sustainability targets in remuneration, literature also encompasses multiple reasons to include sustainability targets in remuneration. Firstly, according to Enric Ricart et al. (2005), the traditional agency theory disregards other stakeholders besides shareholders and managers. Based on the triple bottom line approach of Elkington (1997), Enric Ricart et al. (2005) state that a sustainable firm should also be driven by sustainable development instead of economic growth only. Therefore, remuneration packages should include incentives that also meet the interests of other stakeholders, instead of pursuing shareholders' interests only (Berrone 2008). Secondly, incentives in remuneration should be used to pursue key strategic performance, and hence targets related to sustainability should also be included in executives' remuneration schemes (Kruse & Lundbergh 2010). Thirdly, corporate social performance positively enhances financial performance (King & Lenox 2002; Klassen & McLaughlin 1996; Waddock & Graves 1997). Lastly, targets in remuneration schemes increase the priority and effort given to these targets by executives (Cordeiro & Sarkis 2008; Lothe et al. 1999), since executives feel to be held accountable for the sustainable performance of the firm (Berrone 2008).

Nevertheless, still many companies express their doubts on sustainability targets in remuneration. Critics argue that there are enough reasons not to include sustainable performance as a target in remuneration. Firstly, even though research finds that a positive relationship exist between sustainability and financial performance, some researchers claim that this relationship is negative rather than positive. Victoria Lopez et al. (2007) examine whether financial performance is affected by corporate social responsibility (CSR) by means of comparing 55 Dow Jones Sustainability Index and 55 Dow Jones Global Index companies in the period 1998-2004. Results show that a negative relationship exists between financial performance and CSR. In addition, World Business Council for Sustainable Development (2010) state that some sustainable indicators improve financial performance, while others diminish financial performance. It is argued that indicators such as reducing waste and energy use enhance financial performance, while indicators such as safety and ethics negatively affect financial performance. Secondly, not all stakeholders prefer to undertake the same sustainable initiatives, and hence they perceive to be unequally treated (Berrone 2008). Thirdly, the explicit inclusion of incentives related to sustainability may crowd out the intrinsic motivation to pursue sustainability (Frey 2001). And lastly, to monitor sustainable performance, additional information is required, which is not as easily accessible as information on financial performance (Baysinger & Hoskisson 1990). Hence, measurement of sustainable development is still ambiguous (Berrone 2008).

Despite the ambiguity in the measurement of sustainability, yet some research is performed to measure

the environmental development as a result of the inclusion of environmental performance targets in remuneration schemes. Research on the explicit inclusion of targets related to environmental performance provides evidence for a link between environmental targets and the subsequent development of these targets. First of all, Cordeiro & Sarkis (2008) examine the effect of the inclusion of environmental performance indicators in CEO's remuneration policy on CEO remuneration in 207 Standard & Poor 500 companies in 1996. The compliance index and the spill index are significantly related to CEO remuneration, but the emission index is not significantly related to CEO remuneration. Hence, a linkage between environmental performance and CEO remuneration exist, but this relationship depends on the indicators used in environmental performance.

Furthermore, Berrone & Gomez-Mejia (2009) investigate whether companies with incentives related to pollution prevention and end-of-pipe pollution control have a larger effect on CEO remuneration. In contradiction to their expectation of a positive relationship, Berrone and Gomez-Mejia (2009) find a negative significant effect of CEO remuneration on environmental performance.

In addition, research on incentives in remuneration on management level also examines the link between remuneration and sustainability performance. Russo & Harrison (2005) find evidence for a relationship between plant manager remuneration and emission reductions in a research among 169 electronic firms in the US in 1999. Merriman & Sen (2011) examine the link between remuneration at a middle-management level and sustainable performance, and conclude that the inclusion of incentives encourages behaviour towards social and environmental performance, however, the effect is smaller than the authors expected.

## 2.5 Conclusion

To conclude, monetary incentives in remuneration schemes are used to align the interests of shareholders and executives. Traditionally, rewards were primarily based on financial performance. However, an increasing amount of companies starts including targets related to sustainable performance in order to encourage sustainable development in addition to excellent financial performance. Proponents of sustainability targets advocate that all stakeholders should be included in remuneration policies and that these targets increase the priority given to sustainable performance. Additionally, sustainability is found to increase financial performance and it is part of key performance and should therefore be rewarded. Opponents, on the other hand, state that some studies find a negative relationship between sustainability and financial performance. Furthermore, the preferences of different stakeholders concerning sustainable initiatives might not correspond with each other and the explicit inclusion of sustainability targets might crowd out the intrinsic motivation to pursue sustainability. Moreover, sustainable performance is difficult to monitor, opponents argue. Literature finds that the general relationship between executive remuneration and sustainable development is usually negative when executives are not explicitly rewarded on achieving sustainability targets. However, limited literature on the explicit reward of sustainability targets in executive remuneration finds that a relationship between environmental

performance and executive remuneration is both positive and negative. The effect of social targets, however, is not examined. Thus, it is found that a relationship between sustainability targets in executive remuneration and sustainable development exist, however, this relationship is either found when sustainability targets are not explicitly rewarded in remuneration schemes or when only environmental targets are rewarded. As a result, research on both environmental and social performance as a result of sustainability targets in remuneration is still a relatively undiscovered field.

### 3 Methodology

The previous chapter focused on the existing literature on executive remuneration and the relationship between executive remuneration and sustainable development. In this chapter we outline the hypotheses that are tested in this study and discuss the methodology we use to test the hypotheses.

#### 3.1 Conceptual framework and hypotheses

In Figure 1, the conceptual framework of sustainable remuneration is presented and the corresponding routes to sustainable development are displayed.

**Figure 1 - Conceptual framework**

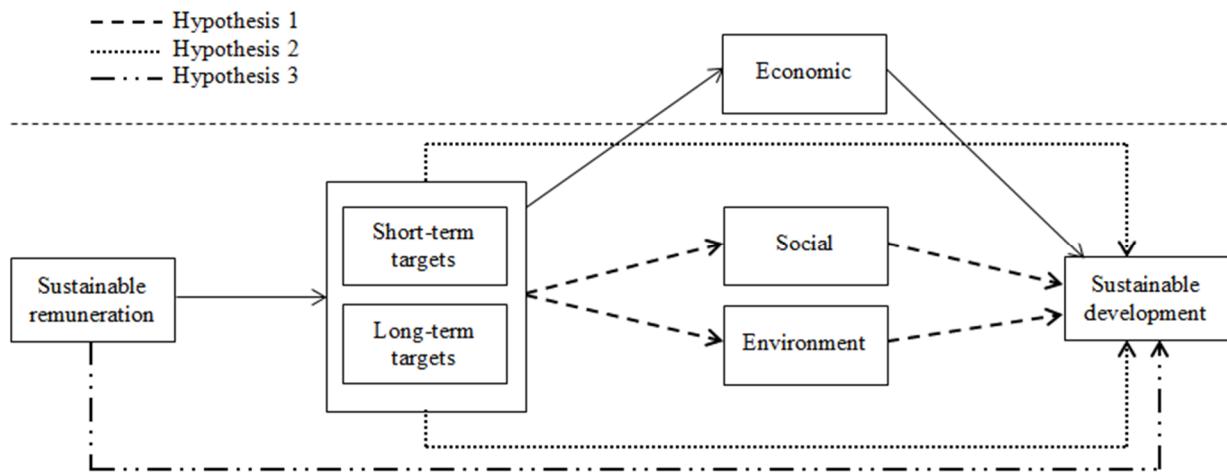


Figure 1 stipulates the hypotheses that correspond to the different routes of sustainable remuneration and the subsequent sustainable development. Three hypotheses are defined to test the relationship that is depicted in Figure 1. More specifically, our hypotheses aim to provide an answer to the general research question:

*Does sustainable executive remuneration contribute to sustainable development?*

In order to provide an answer to this question we developed three hypotheses, testing the relationship between sustainable remuneration and sustainable development:

Hypothesis 1: Sustainability targets in executive remuneration are effective in encouraging sustainable development.

Hypothesis 2: The sustainable development of sustainability targets caused by short-term targets is equal to the sustainable development of sustainability targets caused by long term targets.

Hypothesis 3: Sustainable development increases as the percentage of the sustainability target of total executive remuneration increases.

The above hypotheses are tested by means of data that is collected via global survey research.

### 3.2 Research design

In this study we use triangulation, qualitative and quantitative analysis, to answer the research question. First, qualitative research is used to determine the sustainability targets in executive remuneration. By analysing annual reports we determine which types of sustainability targets are rewarded and how often these targets are rewarded in executive remuneration. Secondly, on the basis of data collected in first step, the research of annual reports, a survey is developed to empirically test the hypotheses. Two samples are invited to participate in the survey. The first sample is collected by using the annual reports. Companies which indicate to reward sustainability targets are invited to fill out the survey. The second sample is collected by means of invitations via LinkedIn to people who hold a position that is related to executive remuneration and/or sustainability.

### 3.3 Operational definition

Throughout this thesis specific terminology is used. This paragraph explains the definition of the frequently used expressions to enhance the general level of understanding of the terminology used. Additionally, we describe the dependent, independent and control variables used in the analysis.

#### 3.3.1 Sustainable remuneration

This study focuses on sustainability targets in executive remuneration. The combination of these two results in sustainable remuneration. Sustainable remuneration concerns the payment to executives after the achievement of targets related to sustainability. Sustainable remuneration is part of the total remuneration package and incorporates targets related to social and environmental issues.

#### 3.3.2 Sustainability targets

Sustainability targets are used to express targets related to sustainability in executive remuneration. The targets are based on the triple bottom line of Elkington (1997) and relate to economic, environmental and social targets. Economic targets are neglected in the sustainability targets, because economic targets are already included in executive remuneration to reward financial performance. Omission of financial performance questions the continuity of an organization, and hence it is assumed that organizations already pursue financial performance. Therefore, the focus in this thesis is on social and environmental targets as sustainability targets. Based on the types of sustainability targets described in the annual reports, a classification of three types of targets and two periods of reward is developed. First, social targets specifically relate to health, safety, employee engagement, customer satisfaction, diversity and community involvement. Secondly, environmental targets relate to energy efficiency, eco-efficiency, emissions reduction and responsible/sustainable products in this study. Thirdly, targets related to both social and environmental issues are sustainability rankings, CSR, stakeholders, reputation and responsible/sustainable investments, and are referred to as combined targets. Additionally, in

sustainability targets a distinction between short-term and long-term targets is made. Short-term sustainability targets are rewarded after a period of one year or shorter and long-term targets are rewarded after a period longer than one year. In the survey, respondents indicate which sustainability targets are included in executive remuneration and whether the targets focus on the short-term or the long-term. The type of targets (social, environmental or combined) and the time frame of the targets (short-term or long-term) are examined in different sub-samples in hypothesis 1. The time frames of the targets are the two levels of the dependent variable in hypothesis 2. The percentage of the sustainability target as part of total remuneration is a continuous variable and is used as independent variable in hypothesis 3. In this thesis it is expected that the achievement of the sustainability targets will lead to sustainable development.

### 3.3.3 Sustainable development

Sustainable development is based on the definition provided by the World Commission on Environment and Development (1987) as “the development that meets the needs of the present world without compromising the ability of future generations to meet their own needs.” Throughout this thesis sustainable development is interpreted as the deterioration or improvement of social and environmental issues as a result of adopting these issues as targets in executive remuneration in 2010. Respondents in the survey indicate this development on a Likert scale from 1 to 7. A development of 1 indicates extreme deterioration of the targets, 2 means significant deterioration, 3 is little deterioration, 4 implies no change, 5 is little improvement, 6 is significant improvement and 7 indicates extreme improvement in 2010. Sustainable development is an interval variable and serves as the dependent variable in each hypothesis in this study.

### 3.3.4 Control variables

In addition to the examination of sustainability targets and the corresponding sustainable development, this study controls for the country in which the company operates, the amount of full-time equivalents and the type of sustainability target. Respondents reveal these variables in the survey. First of all, the variable country is a categorical variable and to draw valid inferences from a categorical variable there should be sufficient observations from each country. Unfortunately, this is not the case, so the countries are divided in continents. Europe, North-America and Other are the three alternatives that serve as the levels of the control variable continent in hypothesis 3. The variable continent remains a categorical variable.

Secondly, type of target is also included as a control variable in hypothesis 3. Even though the type of target is examined in hypothesis 1 already, here, it functions as a control variable to determine if there is a difference in the sustainable development after adopting a specific type of target. Type of target is a categorical variable with three levels; social, environmental and combined targets.

Thirdly, the variable full-time equivalents is a continuous variable and requires no adjustment to be included in the model for hypothesis 3. The respondents state the number of full-time equivalents in their company in the survey.

### 3.4 Survey design

The variables described in the previous section are collected by conducting a survey. The complete survey counts 19 questions of which 15 closed and 4 open-ended questions. The closed questions are related to sustainability targets and the open questions serve as determinants for the characteristics of the company. All questions have a neutral option, since participants may not have access to all information and therefore prefer to stay neutral. To increase the accessibility of the survey a dynamic survey is created by means of filters. Participants who indicate not to adopt sustainability targets in their remuneration policy are immediately guided towards the end of the survey. In addition, the survey also adopts a filter for short-term and long-term sustainable remuneration. In the most extended version of the survey, participants answer 17 questions. Appendix 1 encloses the complete survey. The survey uses a funnel approach, where more specific questions succeed general questions. This funnel approach makes it easier for participants to answer the questions in the survey (Festinger & Katz 1966). Since, individuals are often invited to participate in surveys the average response rate is rather low. Therefore, three measures are applied to increase the response rate. Firstly, participants have the opportunity to remain anonymous (Jobber & O'Reilly 1998; Kiesler & Sproul 1986). Secondly, participants are offered to receive the results of the survey to create an incentive to fill out the survey. Thirdly, invitations to participate are only sent to individuals who appear to have substantial knowledge on executive remuneration, since topic knowledge is positively correlated with response rates to online surveys (Sheehan & McMillan 1999; Watt 1999).

The closed questions ask participants to choose the alternative that most applies to their company. Closed questions allow participants to quickly choose among the given alternatives (Sekaran 2003). In addition, in order to accurately measure the composition of focus points, participants are asked to fill in the percentages that apply to the different focus points. Furthermore, a Likert scale is used to determine how the focus points developed in 2010. The nature of Likert scales implies that the scale is balanced and thus includes a neutral option. The balanced scale is appropriate for the development of sustainability targets, since the neutral option could represent the neutral state of sustainable development, or in other words, no deterioration or improvement (level 4). The Likert scale has equal differences between the alternatives of development, and hence can be considered as an interval variable. Interval scale allows for the comparison of the focus points (Malhotra & Birks 2007).

At the end of the survey four open-ended questions function as a means to determine the characteristics of a company or leave comments. Questions regarding the characteristics of a company might be sensitive information, and are therefore best placed at the end of the survey (Malhotra & Birks 2007; Sekaran 2003). Furthermore, to avoid response error a definition of sustainability targets, board of executives and

short and long-term incentives is provided. In addition, only ordinary words are used and leading questions are avoided. Implicit alternatives and implicit assumptions are also avoided and questions are specifically stated. These measures lower the possibility of response errors (Malhotra & Birks 2007). Additionally, the inclusion of a non-forced choice by means of the possibility of not disclosing an answer increases the accuracy of the response (Schneider 1985).

### 3.4.1 Pilot test

In order to develop the final survey, a draft survey as a means of a pilot test is sent to a company who includes sustainability targets in executive remuneration. A pilot test eliminates potential problems in the survey (Malhotra & Birks 2007). In addition, two corporate governance specialists employed at a Dutch asset management company with substantial knowledge on sustainable remuneration reviewed the survey. The pilot test indicated that some questions required additional information to clarify the purpose of the questions. Hence, examples and additional definitions were included in the survey. Additionally, the sustainability targets were specified further to prevent overlap between them. The pilot also emphasized the necessity of a neutral option in the closed questions. Furthermore, the pilot indicated that companies might prefer to remain anonymous.

### 3.4.2 Electronic survey

The survey is conducted by means of an electronic survey. Electronic surveys are advantageous over postal surveys since electronic surveys provide genuine answers (Bachmann et al. 1999), are less costly and have a high response rate (Sheehan & Hoy 1999). The online-research software used, Global Park, allows for the exact tracking of the responses to the surveys. The survey conduct was set up in three steps. Initially, an account was created with a personalized URL and the questions were inserted. Secondly, eight people completed the survey to determine if there were no complications in filling out the survey. After this quality check, participants were invited in two ways. The first group was invited as a result of the annual reports' analysis by means of an e-mail invitation. The second group was invited by means of e-mails through different LinkedIn groups. The potential participants received a personalized e-mail with instructions, purpose of the research and a link to the survey.

## 3.5 Qualitative analysis

Initially, a qualitative analysis is performed to demonstrate the results of the examination of the annual reports. In this analysis, an overview of the different countries and the corresponding sustainability targets in executive remuneration is given. The analysis shows where the frontrunners are located, but also the laggards in the field of sustainability targets in executive remuneration. The sustainability targets depicted in the annual reports serve as a framework for the definition of the answer alternatives in the survey.

### 3.6 Quantitative analysis

In addition to the qualitative analysis of the annual reports, the survey is analysed in a quantitative way by using the statistical software Stata. Stata is easy and efficient to use and includes the convenient feature to write your own do-file with commands (Baum 2006).

#### 3.6.1 Descriptive statistics

The quantitative analysis starts with an examination of each variable in the descriptive statistics. This analysis provides the frequency of the answers in the survey and expresses the distinctive characteristics of the variables. Additionally, we examine why companies do not apply sustainable remuneration.

#### 3.6.2 One-sample tests

After the individual discussion of the variables in descriptive statistics, a one-sample median test is used to test hypothesis 1 which state that targets related to sustainability encourage sustainable development. Six samples are examined to test hypothesis 1. The total sample includes all observations, while short-term targets, long-term targets, social targets, environmental targets and combined targets refer to the similar named categories.

To test hypothesis 1 a one-sample median (signed-rank) test is used. This non-parametric test tests whether the sample median significantly differs from the hypothesized neutral point of development of the sustainability targets (level 4). A one-sample median test is preferred, since it does not require a normal distribution. Testing for normality by means of skewness and kurtosis shows that sustainable development is non-normally distributed in each sample, except for the long-term targets sample. Hence, a parametric test is preferred for the long-term targets sample.

Despite the fact that most sub-samples are non-normally distributed, it can be assumed that the samples are normally distributed, because the sample sizes are larger than 30 (Black 2009). Hence, a parametric one-sample t-test can be used as a robustness check. The one-sample t-test tests whether the sample means significantly differ from the hypothesized neutral point of development (level 4).

In the sub-sample of long term sustainable remuneration the one sample t-test serves as a means to test hypothesis 1 and the one-sample median test is used as a robustness check, since long term sustainable remuneration follows a normal distribution.

#### 3.6.3 Two-sample tests

The one-sample tests test hypothesis 1, while the two-sample tests approach hypothesis 2. Here, it is tested whether there is a difference in sustainable development caused by short-term targets and long term targets by means of a Wilcoxon rank-sum test. The Wilcoxon rank-sum test is a non-parametric test which compares the two independent conditions of short-term and long-term sustainability targets.

As a robustness check an independent two-sample t-test is conducted. In contradiction to the Wilcoxon rank-sum test this test does assume normal distribution. Since the sample sizes are larger than 30, the independent two-sample t-test can be used as a robustness check.

Both the Wilcoxon rank-sum test and the independent two-sample t-test assume that the samples are completely independent. Some companies, however, simultaneously adopt short-term and long-term sustainable remuneration and the subsequent outcomes for sustainable development might therefore not be independent. As a consequence, only the companies which adopt only short-term or long term sustainable remuneration are included in the sample.

### 3.6.4 Multinomial regressions

After examining the sample with the variable for sustainable development only, hypothesis 3 is tested by means of a multinomial logistic regression. Hypothesis 3 tests the relationship between the percentage of the sustainability target of total remuneration and the sustainable development of the sustainability target. Given the interval character of the dependent variable sustainable development, ordinal logistic regression would, at first sight, be the preferred method to assess the effect of the percentage of the sustainable indicator. However, in the total sample the proportional odds assumption is violated, so a nominal regression model is preferred (Long & Freese 2006). A multinomial logistic regression is used because this model does not require a specific distribution and the dependent variable sustainable development is polytomous. Since the multinomial logistic regression uses the cumulative logistic distribution function, an increase in a significant coefficient does not increase the outcome by the value of the coefficient but by the log odds instead. The consequent odds ratio is the predicted probability of the occurrence of a specific outcome divided by the predicted probability of the base outcome. For instance, the odds ratio can be interpreted as the probability that a significant improvement (level 6) of the sustainability targets occurs versus no development (level 4) of the sustainability target in 2010. The odds ratios of the levels of sustainable development are used to approach hypothesis 3.

In order to test hypothesis 3, we develop four different sub-models, which control for different categories and variables. First of all, sustainable development of the sustainability target is the dependent variable in the regression. Since there are too few observations for deterioration in sustainable development (level 1-3) and extreme improvement in sustainable development (level 7), these levels of sustainable development are omitted from the sample to prevent perfect predictability and large standard errors. As a result, the model only analyses neutral development, little improvement and significant improvement in sustainable development, level 4, 5 and 6, respectively. Each of these levels of sustainable development is inserted as the base outcome and is consequently compared to the other levels.

Secondly, the percentage of the sustainability target of total remuneration is inserted as the independent variable in each model. All four models test whether this variable affects sustainable development. The variable is calculated by means of taking the percentage of the sustainability target as part of total

executive remuneration in 2010. For example, if sustainable remuneration is 25% of total executive remuneration and there are five sustainability targets with an equal share in sustainable remuneration, each target is then 20% of 25%, which makes 5%. This is the percentage that is inserted in the model.

Thirdly, the control variables in the multinomial logistic regression are the type of continent, type of sustainability target and full-time equivalents. Ideally, industry, country, full-time equivalents and the fifteen types of sustainability targets are included in the model. Industry, country and sustainability targets should be included as categorical variables to allow for interpretable results. However, there are too few observations to make valid inferences about each entry in industry, country and sustainability target in the multinomial logistic regression. As a result, industry is omitted as a possible control variable in the model and country is transformed to the variable continent with three categories; Europe, North-America and Other (countries that are neither in Europe nor in North-America). Unfortunately, other continents have too few observations to insert all continents separately in the regression. In addition, sustainability targets are classified into three types of targets instead of fifteen. The three types of sustainability targets are social, environmental and combined targets.

Consequently, we develop four different sub-models to test the effect of the independent variable percentage of the sustainability and to control for type of continent, type of sustainability target and full-time equivalents. Table 1 provides an overview of the four sub-models.

**Table 1 - Sub-models multinomial logistic regression**

	Model			
	A	B	C	D
Percentage target	x	x	x	x
<i>Continent</i>				
Europe	BASE	BASE	BASE	BASE
North-America	x	x	x	x
Other	x	x	x	x
<i>Sustainability target</i>				
Social targets	BASE	-	BASE	BASE
Environmental targets	x	BASE	x	x
Combined targets	-	x	x	x
FTEs	-	-	-	x

BASE= Base outcome

x = Variable/category is included in the model

- = Variable/category is not included in the model

Each model includes the independent variable percentage of the sustainability target of total executive remuneration and all categories for the control variable continent. Model A determines whether environmental targets lead to a different level of sustainable development in comparison to social targets. Model B determines whether combined targets cause a different degree of sustainable development in comparison to environmental targets. Because full-time equivalents are included in only 133 of 174 observations, a model without full-time equivalents (model C) and model with the variable full-time equivalents is developed (model D). The four variables that are inserted in the models have two different

interpretations. On the one hand, the coefficients of the continuous variables percentage of the sustainability target and full-time equivalents are interpreted as the degree to which the odds ratio changes if a significant variable increases by one unit. On the other hand, the coefficients of the categorical variables continent and type of target are interpreted as the change in the odds ratio when a specific significant category occurs in comparison to a base category.

The models only examine the total sample, because there are too few observations to draw valid inferences from the short-term and long-term targets sample. In addition, the observations in which sustainable development and country are not disclosed are deleted from the sample. Participant who indicate to be globally situated are also deleted from the sample.

As robustness check the four sub-models are also tested by means of a multinomial probit regression. This model is similar to the multinomial logistic regression, however, the interpretation of the coefficients is different.

### 3.7 Conclusion

In summary, this study uses triangulation to answer the research question. Firstly, annual reports are examined to perform a qualitative analysis. More specifically, the qualitative analysis determines the types of sustainability targets in executive remuneration. Secondly, with the use of the information from the qualitative analysis, a survey is developed to perform the quantitative analysis. The survey is globally conducted and the data from the survey are used to empirically test the hypotheses. Three hypotheses are tested to provide an answer to the research question whether sustainable executive remuneration contributes to sustainable development. Hypothesis 1 tests if sustainability targets in executive remuneration are effective in encouraging sustainable development by means of one-sample tests. Hypothesis 2 tests that the sustainable development caused by short-term targets and long-term targets is equal by means of two-sample tests. Lastly, hypothesis 3 tests whether sustainable development increases as the percentage of the sustainability target of total executive remuneration increases by means of multinomial regressions.

## 4 Data

The previous chapter elaborated on the methodology used in this study. In this chapter we describe the sample that is used in the analysis and the corresponding internal and external validity.

### 4.1 Sample

To address the hypotheses in the previous chapter, two samples are selected. The first sample is created with the use of annual reports. Companies are selected if they indicate in their annual reports of 2010 that they reward sustainability targets in executive remuneration. Hence, it does not concern the achieved targets and the paid rewards in 2010; the percentages and amount of sustainable remuneration are neglected. It only concerns whether their executive remuneration policy indicates to reward sustainability targets. Thus, the annual reports are examined on the application of the sustainability targets, social and environmental targets.

Annual reports from the largest publicly listed companies in Australia, Canada, Denmark, Finland, France, Germany, The Netherlands, Norway, Sweden, the United Kingdom (UK) and the USA are examined to determine the reward of targets related to sustainability in executive remuneration. Table 2 in Chapter 5 (p. 30) gives an overview of the number of companies selected from each country and the index or list they are extracted from. In total, 490 companies in 11 countries are examined. Since the number of companies on the most important indexes in each country differs, the frequency of companies across countries also differs. There are two reasons why these 11 countries are selected. Firstly, the companies on their most important index or their largest listed companies based on Forbes have annual reports that are publicly available. Secondly, they also publish their annual reports in English. From the 490 companies that are examined, 161 reward social and/or environmental targets in their executive remuneration. After the examination of the annual reports, 158 companies were invited to participate in the survey by means of an invitation via e-mail. Three companies were not invited because their contact details were not publicly available. Dependent on the availability, the invitations are sent to the executive board, board secretary, sustainability department, human resources department, investor relations or public relations with the request to fill out the survey if they had sufficient knowledge on executive remuneration and if not, they were requested to forward the survey to the relevant person.

To increase the number of survey participants, a second sample is invited via LinkedIn. LinkedIn has the advantageous feature that groups related to specific topics are available and that the position of members of LinkedIn are publicly known. Groups related to executive remuneration, remuneration and chief sustainability officers are examined, and subsequently invitees were selected by means of their position in the company. The position requires to be related to executive remuneration, remuneration, sustainability and/or company secretary. These people are selected since based on their interest in a specific group and their position in the company, it is expected that they have enough knowledge on the topic of executive

remuneration and/or sustainability to correctly answer the questions in the survey. Based on the position of the people in the LinkedIn groups 729 people were found qualified to answer the survey on executive remuneration. All 729 people were invited to participate in the survey. Table 13 (p.64) provides an overview of the number of people selected and invited from each LinkedIn group. Unlike the first sample, the companies in the second sample are not necessarily publicly traded. The total sample therefore exists of both publicly traded and privately owned companies.

The first and the second sample amount to 887 invitations for the survey. The survey was opened by 198 invitees and completed by 122 invitees. This results in a response rate of 14%. From the survey results the companies that reward sustainability targets in executive remuneration are selected for the quantitative analysis. In this selection, no distinction between the first and the second sample is made, so the samples are regarded as one sample. From the 122 companies in the survey, 40% indicates to reward sustainability targets in executive remuneration. This results in a final sample of 49 companies.

## 4.2 Validity

To determine whether accurate conclusions about the independent variables and the relation to the dependent variables from the sample of 49 companies can be drawn, the internal validity of the sample is examined. The potential generalization to a larger population is ascertained by external validity.

### 4.2.1 Internal validity

Internal validity assures that the inferences made from the independent and dependent variables are accurate. The independent variables in the sample should be unbiased and consistent (Stock & Watson 2007). However, the survey potentially faces biases related to omitted variables in the sample, errors-in-variables and sample selection bias (Stock & Watson 2007).

Firstly, to improve the response rate, only limited questions are asked, which potentially causes omitted variables bias. Unfortunately, no additional variables are available and measures to diminish omitted variables bias (panel data, instrumental variables regression and randomized controlled experiment) are inadequate for this data set. Consequently, conclusions should be drawn with caution.

Secondly, in addition to omitted variables bias, the model is also exposed to errors-in-variables bias. This bias is caused by the inaccurate measurement of the variables in the model. The dependent variable in the survey is based on the perception of the participants and hence faces a human bias. To determine how severe this human bias is, data on the development of sustainability targets is compared against data on social and environmental issues from Bloomberg. From the 49 companies that reward sustainability targets, 24 companies disclose their name. From these 24 companies, 4 companies supply their data to Bloomberg over 2010. For these 4 companies, Bloomberg finds similar information on the contribution to environment and society to the development of sustainability targets as provided in the survey.

Accordingly, it may be concluded that perception does not affect the accuracy of the variables, however, caution is still required since the degree of comparison is rather small.

Thirdly, because of the manner in which the two samples in the analysis are selected, the model contends with sample selection bias. The first group is invited after the review of annual reports. Companies which publish their annual report in English are examined and subsequently the companies with sustainability targets in their executives' remuneration are invited to participate in the survey. Only companies which adopt sustainable remuneration are included in the sample for the quantitative analysis. The specific selection based on the application of sustainability targets in executive remuneration should therefore not influence the results. However, this sample selection might bias the frequency of sustainable remuneration of 40%. Since the frequency of sustainable remuneration is above the 29% of Eurosif & EIRIS (2010), which is found by external research, and lower than the frequency of 50% that is provided by CEOs in Accenture & United Nations Global Compact (2010), the sample frequency is assessed to be a decent representation of the population. The frequency of sustainable remuneration is not tested in the quantitative analysis and therefore does not violate internal validity. In addition, the selection of companies with an English version of their annual report is also not expected to influence the results, because the final sample is mainly represented by the observed countries from the qualitative analysis.

The second group is only invited when the participants are connected to LinkedIn and are subsequently a member of specific groups. Invitations are only sent to people with a position related to (executive) remuneration and/or sustainability. This specific selection could bias the results, since it excludes companies which are not connected to LinkedIn. In addition, participants who are a member of a group related to sustainability or have a position in the sustainability department might be more inclined to work for a company that pursues sustainable development. However, only 23% of the LinkedIn invitations relates to sustainability groups, so this specific selection bias is only small. This specific selection based on participant's position could also ensure a higher accuracy of the survey answers and possibly counterbalances the sample selection bias. Still, some sample selection bias remains because of the exclusion of companies that are not connected to LinkedIn.

Thus, the model faces omitted variables, errors-in-variables and sample selection bias. However, this bias is only expected to be small.

#### 4.2.2 External validity

In contrast to internal validity, which measures the accuracy of the dependent and independent variables within the sample, external validity determines whether the drawn conclusions from the sample are extendable to a larger population. The sample is drawn from the population to which it should be extended, hence it is possible to generalize the results to a larger population if the sample size of each country is large enough. Unfortunately, some countries are only included once, which decreases the external validity. This invalidity is addressed by creating three categories: Europe, North-America and

Other. However, since part of the sample is still dependent on being connected to LinkedIn, sample selection bias also decreases external validity. Consequently, the sample faces internal and external invalidity and conclusions should be drawn with care.

#### 4.3 Conclusion

To conclude, the complete sample is created by inviting two samples. First, invitations are sent on the basis of the review of annual reports. We find that 161 companies out of 490 companies adopt sustainability targets in executive remuneration. Eventually, 158 companies are invited to participate in the survey. Secondly, 729 LinkedIn members with substantial knowledge on executive remuneration and/or sustainability are found qualified to participate in the survey. As a result, in total, 887 invitations to participate in the survey are sent. From the 122 companies that completed the survey, 49 companies reward sustainability targets in executive remuneration and are therefore included in the sample.

In order to ensure that valid inferences are drawn from the sample we examine the internal and external validity. We find that the sample faces internal invalidity by omitted variables bias, errors-in-variables bias and sample selection bias. In addition, the sample also faces external invalidity due to the sample selection bias. Thus, conclusions should be drawn with caution, however, the internal and external invalidity are only small.

## 5 Results

The previous chapter depicted how the data for the qualitative and quantitative analysis is collected. In this chapter we present and describe the results of our analyses.

### 5.1 Qualitative analysis

The annual reports provide a qualitative manner to objectively assess the frequency of sustainable remuneration. Eleven countries worldwide are selected and the largest listed companies are reviewed by means of the annual reports of 2010. In total, 490 companies are evaluated and 161 of these companies are found to adopt social and/or environmental targets in executive remuneration. In other words, 33% of the companies in this sample include targets related to sustainability. Table 2 shows the quantity of companies selected in each country and how the sample is constructed. In addition, it indicates how often sustainable remuneration is applied in each country.

**Table 2 - Frequency sustainable remuneration per country - annual reports**

Country	Index	# Companies from index	# Sustainable remuneration	% Sustainable remuneration
Australia	ASX	50	28	56%
Canada	S&P TSX	60	33	55%
Denmark	Forbes	10	2	20%
Finland	Forbes	12	0	0%
France	CAC	40	8	20%
Germany	DAX	30	6	20%
The Netherlands	AEX & AMX	50	14	28%
Norway	Forbes	10	3	30%
Sweden	Forbes	28	2	7%
United Kingdom	FTSE100	100	37	37%
United States of America	S&P100	100	28	28%
Total		490	161	33%
Average				27%

Even though 33% of the total sample adopts sustainable remuneration, on average, in each country, 27% of the companies use sustainability targets in executive remuneration. From the table we can conclude that more than half of the companies in Australia and Canada adopt sustainability targets in executive remuneration. Scandinavian countries score relatively low in comparison to other countries in the sample; Denmark, Finland, Norway and Sweden adopt 20%, 0%, 30% and 7%, respectively. However, one side note is that the amount of companies from these countries is relatively low. France and Germany also modestly adopt sustainable remuneration; only 20% of the companies in France and Germany apply sustainable remuneration. The Netherlands, Norway, the UK and the USA include sustainability targets in executive remuneration in slightly more companies than the average in each country.

Sustainability targets are divided in three categories; targets related to social issues, environmental issues or a combination of both. Targets related to social issues are majorly represented in comparison to

environment targets; 70 companies of the total sample focus on targets related to social issues only and only one company focuses on environment as a sustainability target in executive remuneration. Nevertheless, environmental issues could still be addressed by means of combined targets; 90 companies adopt a combination of social and environmental targets in executive remuneration. Figure 2 gives a graphical representation of the frequency of the application of social targets and combined targets. Environmental targets are omitted from this model, since there is only one company (UK) with an exclusive focus on environmental targets in sustainable remuneration.

**Figure 2 - Percentage of application of combined and social targets per country - annual reports**

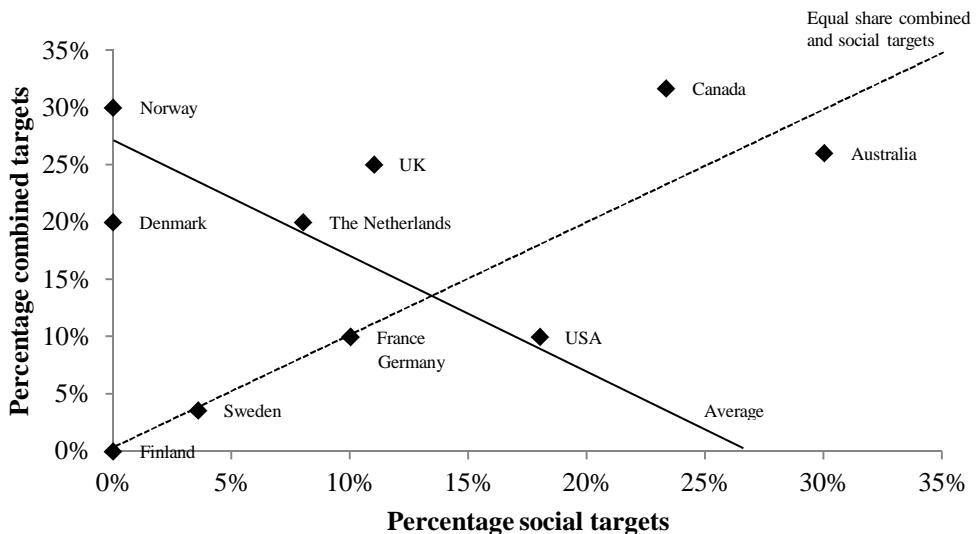


Figure 2 shows the frequency of the application of social targets and combined targets in the companies within each country. Adding up the frequencies of social targets and combined targets from Figure 2 results in the total frequency of sustainable remuneration in a specific country. The downwards sloping curve indicates the average total percentage of the application of sustainable remuneration over the countries. In most countries, companies include social or combined targets. However, the focus on combined targets is larger than the focus on social targets. Companies situated in Denmark and Norway exclusively focus on combined targets in remuneration. Australia and the USA are the only countries in which a majority of the companies focuses on social targets instead of combined targets. France, Germany, Sweden and Finland have an equal division between companies that adopt social targets and companies that adopt combined targets. Australia and Canada are found to have the highest percentage of sustainable remuneration.

Companies which adopt social targets mention to focus on customers, employees, health, safety, ethics and diversity. Many companies focus on customers, but also health and safety are often mentioned. Companies with environmental targets state to focus on environment, energy efficiency, and emissions reduction. The majority of the companies state to include both social and environmental targets. Combining both targets implies that the companies explicitly focus on social and environmental targets,

e.g., customer satisfaction and emission reduction, or demonstrate to adopt targets that relate to both social and environmental targets, such as CSR. In addition, targets related to both social and environmental issues also include Dow Jones Sustainability Index listing, stakeholders and reputation. The sustainability targets in this qualitative analysis are the basis of the answer alternatives in the survey.

Nearly all companies reward sustainable targets in the short-term and disregard the long term in sustainable remuneration. Unfortunately, the improvement or deterioration of the sustainability targets in their remuneration policy is not provided in the annual reports of 2010. In addition, companies also often omit in their annual reports how the targets are assessed; the sustainability targets are found to be highly competitive and therefore discretion is required. Hence, information on the measurability and transparency is still lacking in annual reports. Therefore, the quantitative analysis is more useful to answer the general research question.

## 5.2 Quantitative analysis

In the previous paragraph a qualitative analysis provides the results of the examination of the annual reports. This paragraph focuses on the results of the survey and consequently tests the three hypotheses by means of one-sample tests, two-sample tests and multinomial regressions.

### 5.2.1 Descriptive statistics

In total, 887 invitations for participation in the survey were sent. From these invitations, 122 participants completely finished the survey. From the 122 participants who completed the survey, 49 participants indicated to adopt sustainability targets in executive remuneration. This indicates that 40% of the companies in the sample adopt sustainable remuneration. Short-term sustainability targets are rewarded by 37 companies and long-term sustainability targets are rewarded by 28 companies. Hence, rewarding sustainability is more often done in the short-term. In addition, 16 companies focus on both short-term and long-term sustainability targets, while 21 companies only focus on the short-term and 12 companies focus on long-term sustainability targets.

From the 49 companies that reward sustainability targets in executive remuneration, only 33 companies disclose the exact percentage of sustainable remuneration. Table 3 provides the frequencies of the percentages of sustainable remuneration of total remuneration and the percentage of sustainability targets of total remuneration.

**Table 3 – Frequency percentages sustainable remuneration and sustainability targets of total remuneration - survey**

Frequency percentages sustainable remuneration of total remuneration			Frequency percentages sustainability target of total remuneration		
%	Short-term	Long-term	%	Short-term	Long-term
5%	2	1	0%-1%	17	10
10%	5	0	1%-2%	18	9
15%	2	2	2%-3%	21	18
20%	1	4	3%-5%	7	26
25%	4	2	5%-7%	30	18
30%	1	0	7%-10%	5	8
35%	2	1	10%-15%	8	7
40%	0	1	15%-25%	1	2
50%	1	2	25%-35%	3	0
55%	0	1	35%-45%	2	4
85%	1	0	45%-55%	0	1
90%	0	1	>55%	0	0
Average	37.1%	40.4%	Average	13.9%	15.6%

The table demonstrates that short-term sustainable remuneration is skewed to the right, while long-term sustainable remuneration has a diverged frequency of percentages. The averages of the percentage of the time frames, however, are similar. Short-term sustainable remuneration is 37.1% of total short-term remuneration, on average, and long-term sustainable remuneration is 40.4% of total long-term remuneration. The frequency of the percentages of sustainability targets of total remuneration shows that both short-term and long-term targets mainly focus on targets with a percentage lower than 15%. Percentages between 5% and 7% are most popular in the short-term and percentages between 3% and 5% are most popular in the long-term. The average percentage of the sustainability target in the short-term is 13.9% and 15.6% in the long-term.

Furthermore, companies from 22 different countries participated in the survey. Table 4 gives an overview of the frequency of countries in the data sample and the amount of companies which apply sustainable remuneration. In addition, the average development of sustainable development in each country is added.

**Table 4 - Frequency sustainable remuneration and average sustainable development per country - survey**

Countries	Total	Sustainable remuneration	Short-term sustainable remuneration	Long-term sustainable remuneration	Average development
<i>Europe</i>					
Belgium	2	1	1	0	-
Denmark	2	0	0	0	-
Finland	1	0	0	0	-
France	1	0	0	0	-
Germany	2	1	0	1	4.8
Italy	1	1	1	1	4.5
Netherlands	9	7	4	4	4.82
Russia	1	1	1	0	4.5
Sweden	1	1	1	1	2.5
Switzerland	2	1	1	0	4
UK	25	10	8	5	4.62
Ukraine	1	0	0	0	-
<i>North-America</i>					
Canada	12	5	4	3	4.68
Mexico	1	1	1	1	6.09
USA	29	6	5	4	5.13
<i>Other</i>					
Australia	8	6	6	2	4.96
Brazil	3	1	1	0	6.58
India	4	2	0	2	4.6
Philippines	1	1	0	1	5.5
Qatar	1	0	0	0	-
Saudi Arabia	1	1	0	1	6.6
Global	5	1	1	1	4.71
No disclosure	9	2	2	1	-
Total	122	49	37	28	4.91

Table 4 shows that the sample is mainly represented by Anglo-Saxon countries; participants from Canada, UK and USA represent 12, 25 and 29 of the 122 participants, respectively. Together with the Netherlands, the Anglo-Saxon countries also deliver the highest contribution to sustainable remuneration in the total sample; Australia, Canada, the Netherlands, UK and the USA amount to nearly 70% of the sustainable remuneration companies. Ten countries are only represented by one company. From the countries with at least 2 companies with sustainable remuneration, the Netherlands and Australia have the highest percentage of application of sustainable remuneration within their country; 75% and 77.78%, respectively. The Netherlands is also the only country with an equal division between the application of sustainability targets in the short-term and long-term. All other countries with more than two companies focus more on the short-term than on the long-term. Additionally, the Netherlands is also found to be the only country that has an equal share between sustainability targets related to social issues and environmental issues. The other countries mostly focus on social targets instead of combined targets or environmental targets. The percentage of sustainable remuneration, on the other hand, is found to be

widely dispersed within the countries. None of the countries majorly focus on a low or high percentage of sustainable remuneration of total remuneration.

The average development of the sustainability targets ranges from 2.5 to 6.6, where the possibilities of sustainable development range from extreme deterioration (1) to extreme improvement (7). The average of the countries' average development amounts to 4.91. Brazil, Mexico and Saudi Arabia display a development above 6, however, each of these country only includes one company. Only one country appears to have deterioration on average; Sweden displays a development of 2.5 on average. From the top-5 highest frequency of sustainable remuneration, the USA is the only country with a development above 5, and Australia, Canada, the Netherlands and UK have an average development between 4.5 and 5.

Next to the examination of the countries, the different industries are also examined. All ten industries from the Industry Benchmark except technology adopt sustainability targets in executive remuneration. Table 5 gives an overview of the industry frequency, the corresponding frequency of sustainable remuneration application and the average development of the sustainability targets.

**Table 5 - Frequency sustainable remuneration and average sustainable development per industry - survey**

Industry	Total	Sustainable remuneration	Short-term sustainable remuneration	Long-term sustainable remuneration	Average development
Oil & Gas	9	3	3	0	4.13
Basic Materials	8	6	6	2	4.36
Industrials	16	4	1	4	6.27
Consumer Goods	14	4	3	2	5.47
Health Care	4	2	2	2	5.25
Consumer Services	16	8	5	7	4.98
Telecommunications	10	4	3	2	4.68
Utilities	2	2	1	2	5.11
Financials	28	14	11	7	4.87
Technology	9	0	0	0	-
No disclosure	6	2	2	0	5.42
Total	122	49	37	28	5.05

The sample exists for 23% of financial companies and all other industries are variedly represented. None of the participants in technology industry applies sustainable remuneration and half of the companies in the financial industry adopt sustainable remuneration. Basic materials, on the other hand, have the highest frequency of sustainable remuneration; 6 out of 8 companies focus on sustainability targets. In addition, the oil and gas industry is the only industry which focuses solely on the short-term in sustainable remuneration. The average development ranges from 4.13 to 6.27 and the average of the average developments among the industries is 5.05. The average development of sustainability targets is highest in the industrials; 6 companies in the industrials industry amount to an average of 6.27. Oil and gas have the lowest average development, 4.13, but this average is based on three companies only. Consumer

goods is the only industry in which a company solely focuses on environmental targets. All other industries have a large focus on social targets.

In addition, participants also indicate the amount of full-time equivalents in their company. This amount ranges from 9 to 160,000. Unfortunately, only 41 of the 49 sustainable remuneration companies include the amount of full-time equivalents. Companies with more than 50,000 full-time equivalents equally focus on short-term and long-term incentives. However, companies in the range 20,000-50,000 demonstrate to focus on short-term targets only. Companies with less than 20,000 full-time equivalents also focus on both short-term and long-term sustainable remuneration. The type of targets is equally divided among the amount of full-time equivalents.

In total, the participants in the sample with sustainable remuneration reward 317 sustainability targets spread over 15 different targets. Table 6 gives an overview of the frequency of each sustainability target in the short-term and long-term remuneration and the corresponding average development.

**Table 6 - Frequency sustainability targets and average sustainable development - survey**

Sustainability target	Short-term targets			Long-term targets		
	Total	Excluding no disclosure and other targets	Average development	Total	Excluding no disclosure and other targets	Average development
<i>Social targets</i>						
Health	11	9	5.81	10	9	5.6
Safety	20	16	5.45	11	9	6
Employee engagement	23	21	5.04	15	14	5.33
Customer satisfaction	25	23	5.08	17	16	5.29
Diversity	14	12	4.86	12	10	5.5
Community involvement	13	12	5.31	11	11	5.18
<i>Environmental targets</i>						
Energy efficiency	9	7	5.89	5	5	5.4
Eco-efficiency	6	4	5.83	4	3	6
Emissions reduction	8	6	4.75	6	6	4.83
Sustainable products	7	6	5.43	4	4	5.75
<i>Combined targets</i>						
Sustainability rankings	5	4	5.6	5	5	5.4
CSR	12	10	5.33	7	6	5
Stakeholders	13	12	4.77	9	8	5.33
Reputation	11	10	5.45	13	12	5.15
Sustainable investments	6	4	5.83	5	5	4.6
Other	7			3		
Total	183	156	5.28	134	123	5.36
Average	3.7			2.7		

Table 6 shows the 15 different sustainability targets that are included in the survey. Of these targets, 183 short-term targets and 134 long-term targets are included in executive remuneration in 2010. Hence, short-term targets are more popular in executive remuneration. The frequency of the targets ranges from 5 to 25, where, on average, each company adopts 3.7 short-term targets and 2.7 long term targets in

sustainable remuneration. In short-term remuneration, sustainability ranking is least frequently included and customer satisfaction is most frequently included, and in long-term sustainable remuneration, eco-efficiency and sustainable investments is least frequently included and customer satisfaction is again most frequently included. Figure 3 gives a graphical representation of the frequency of the type of sustainability targets per time frame.

**Figure 3 - Frequency short-term and long-term sustainability targets - survey**

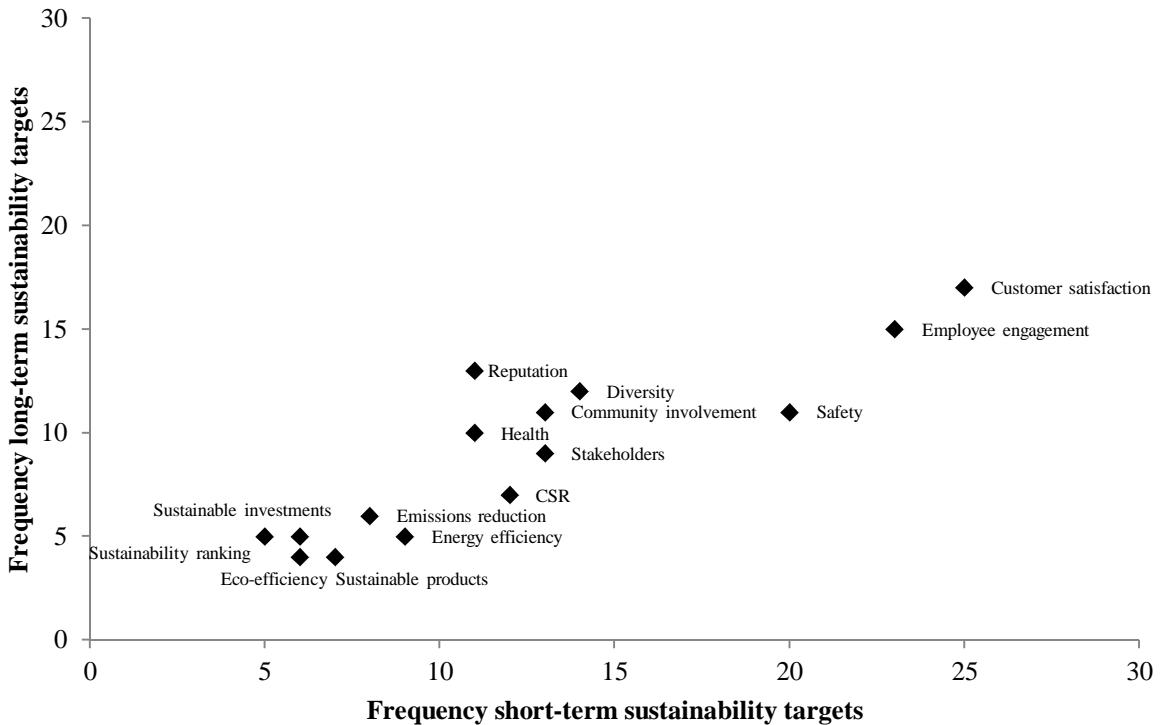


Figure 3 also shows that short-term sustainability targets are more frequently applied than long-term sustainability targets. Additionally, it also indicates that social targets are frequently rewarded in both short-term and long-term remuneration. Environmental targets, on the other hand, are less popular in sustainable remuneration. Combined targets, are less often applied than social targets, but still exceed the frequency of environmental targets. The combined targets reputation and sustainable investments are more often rewarded in the long-term than in the short-term. However, all other combined targets are more frequently adopted in short-term sustainable remuneration.

In addition to the frequency of each sustainability target Table 6 also indicates the average development of each target. Even though short-term targets are more often included in sustainable remuneration, long-term targets appear to have a higher level of sustainable development in 2010, on average; short-term targets developed by 5.28 and long-term targets by 5.36. Short-term targets develop between 4.75 and 5.89, where emissions reduction shows to be least developed and energy efficiency is most developed. Long-term targets, on the other hand, develop between 4.6 and 6, where sustainable investments is least developed and eco-efficiency and safety are most developed. The range of short-term development is

smaller, starts higher and ends lower. Figure 4 shows the average development for each sustainability target in both time frames.

**Figure 4 - Average development short-term and long-term sustainability targets - survey**

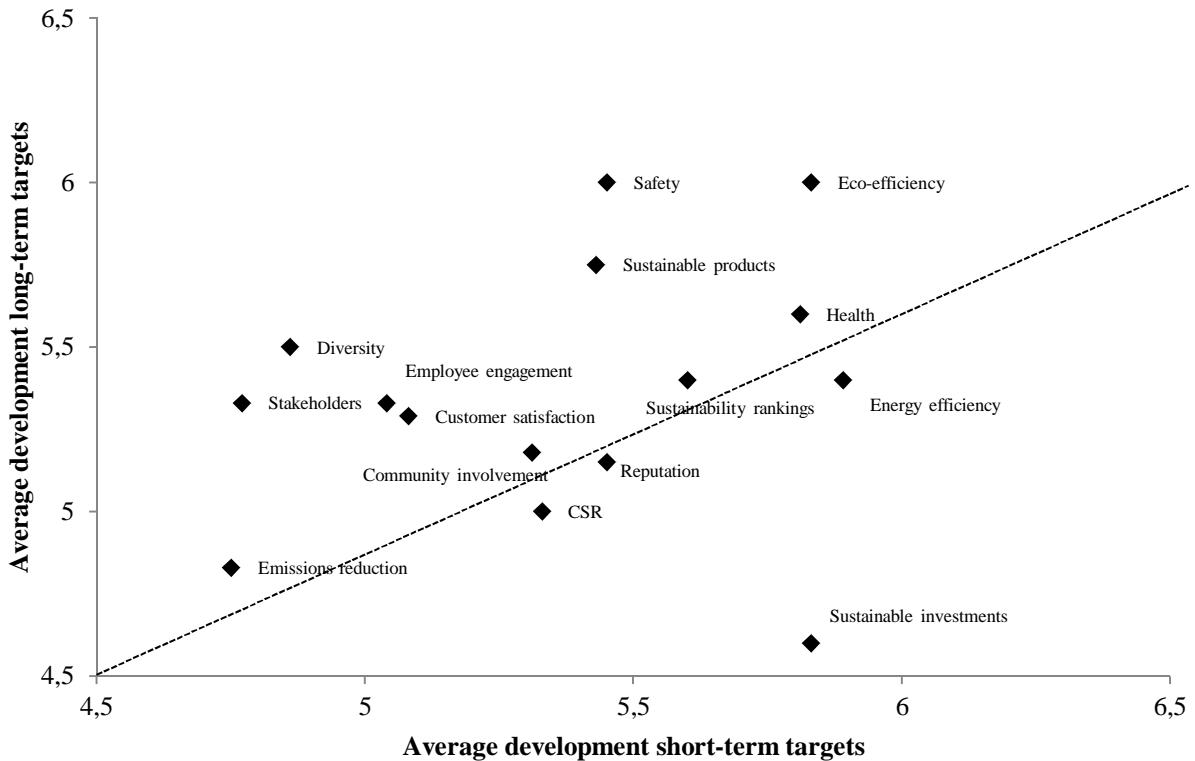


Figure 4 shows that the average development for most sustainability target does not alter much when the target is rewarded in the short-term instead of the long-term and the types of targets are not clustered around a specific average development. Only sustainable investments show a low development in the long-term and relatively high development in the short-term. Thus, from Figure 4 it appears that there is no difference between the sustainable development caused by short-term targets and long-term targets.

Even though 40% of the companies in the sample reward sustainability targets in executive remuneration, a majority of the participants indicate to refrain from sustainable remuneration. From the 122 companies in the sample, 73 companies do not reward sustainability targets in their executive remuneration.

Contribution to sustainability in another way is the most important reason to exclude sustainability targets from executive remuneration; 35 companies state this argument as one of the reasons to refrain from sustainable remuneration. Furthermore, 9 companies indicate that the application of sustainable targets in executive remuneration is not in line with their business strategy. Additionally, 5 companies find that profitability will lead to sustainability and 4 companies indicate that sustainability targets are included in some of the board executives' targets and not in the complete board executives' remuneration. Only one company reveals that sustainability targets in executive remuneration negatively affects financial results. However, from the companies that abstain from sustainable remuneration, 16% indicate to reward

sustainability targets in the future and 31% is still discussing this topic. Nevertheless, 48% of the companies that refrain from sustainable remuneration reveal that they are not planning to reward sustainability targets in their executive remuneration. Hence, opinions among the companies who abstain from sustainable remuneration still widely diverge.

### 5.2.2 One-sample tests

In the descriptive statistics a description of the included variables in the hypotheses testing is provided. Here, hypothesis 1 is tested by means of one-sample tests. Hypothesis 1 tests whether sustainability targets in executive remuneration are effective in encouraging sustainable development. With the use of the non-parametric one-sample median test it is tested whether the sample median significantly differs from the hypothesized neutral point of no development (level 4). Table 7 shows the results of the one-sample tests for the total sample, short-term and long-term targets, and social, environmental and combined targets.

**Table 7 - Results one-sample median test**

	z-score	P-value	Observations		
			Positive	Negative	Zero
Total sample	11.1660	0.0000	186	15	78
Short-term targets	7.709	0.0000	99	9	48
Long-term targets	8.155	0.0000	87	6	30
Social targets	8.413	0.0000	109	10	43
Environmental targets	4.146	0.0000	27	2	12
Combined targets	6.1000	0.0000	50	3	23

The positive observations in Table 7 indicate the amount of observations where sustainable development is improved (level 5-7). The negative observations, on the other hand, are the amount of observations below the neutral point (level 1-3). The zero observations count the number of incidents where the hypothesized value is equal to sustainable development and hence, demonstrates no change in sustainable development (level 4). The results indicate that the sustainable development of each sub-sample significantly differs from the neutral level of development at a 1% significance level. Hence, hypothesis 1 is true for all samples.

As a robustness check, the parametric one-sample t-test is performed. In contradiction to the one-sample median test, the t-test compares the mean, instead of the median, of the sample to the hypothesized value of 4. Table 8 displays the results of the t-test in the total sample and the five subsamples.

**Table 8 - Results one-sample t-test**

	Observations	Mean	Standard Error	95% Confidence Interval		t-statistic	P-value
Total sample	279	4.95	.0724	4.8038	5.0887	130.755	0.0000
Short-term targets	156	4.81	.1009	4.6084	5.0070	80.039	0.0000
Long-term targets	123	5.12	.1010	4.9220	5.3220	111.050	0.0000
Social targets	162	4.99	.0991	4.7920	5.1833	99.696	0.0000
Environmental targets	41	4.95	.2035	4.5400	5.3625	46.748	0.0000
Combined targets	76	4.86	.1195	4.6172	5.0933	71.566	0.0000

Similar to the median test, the results of the t-test in Table 8 also demonstrate that the sustainable development of each sample significantly differs from the hypothesized neutral sustainable development at a 1% significance level. Because there is no difference in the results between the two one-sample tests, the interpretation of long-term targets does not require assessing the parametric tests first.

Thus, testing for hypothesis 1 by means of the non-parametric one-sample median test and the parametric one-sample t-test finds that the sustainability targets in all samples significantly improve sustainable development and thus hypothesis 1 is accepted.

### 5.2.3 Two-sample tests

In the previous paragraph the results of hypothesis 1 are given, while in this paragraph hypothesis 2 is tested with the use of two-sample tests. The two-sample tests are used to test the hypothesis whether there is a difference in sustainable development caused by short-term targets and long term targets. Since, some companies reward both short-term and long-term sustainability targets, the inclusion of these observations may bias the results. Therefore, 16 companies with 54 observations of short-term targets and 46 observations of long-term targets are omitted from the sample.

By using a non-parametric Wilcoxon rank-sum test the sustainable development caused by short-term targets is compared to the sustainable development caused by long-term targets. Table 9 shows the results of this test.

**Table 9 - Results Wilcoxon rank-sum test**

	Observations	Rank-sum	Expected
Short-term targets	102	8745	9180
Long-term targets	77	7365	6930
z-score	-1.313		
P-value	0.1891		

Table 9 demonstrates that there is no significant evidence for a difference between the sustainable development caused by short-term targets and long-term targets ( $z = -1.313$ ,  $p = 0.1891$ ). Hence, hypothesis 2 is accepted.

As a robustness check, the parametric independent two-sample t-test is performed. The independent t-test compares the mean of the sustainable development of short-term targets with the mean of sustainable development of long-term targets. Table 10 shows the results.

**Table 10 - Results independent two-sample t-test**

	Observations	Mean	Standard Error	Standard Deviation	95% Confidence Interval	
Short-term targets	102	4.8275	0.1290	1.3024	4.6167	5.1283
Long-term targets	77	5.1818	0.1429	1.2537	4.8973	5.4663
Combined Difference	179	5.0056	0.0962	1.2874	4.8157	5.1955
t-statistic		-1.5983			-0.6911	0.0726
P-value		0.1118				

Again, there is no significant difference between the sustainable development of short-term targets and long-term targets ( $t = -1.5983$ ,  $p = 0.1118$ ). The confidence interval ranges from -0.6911 to 0.0726, so the majority of the confidence interval is where long-term targets have a higher mean, however, the results are not significant.

Hence, it is concluded that there is no significant evidence for a difference between the sustainable development of short-term targets and long-term targets. Consequently, the hypothesis that sustainable development of short-term sustainability targets is equal to the sustainable development of long-term targets is accepted.

#### 5.2.4 Multinomial regressions

In the previous sections, hypothesis 1 and 2 are tested. This section tests the hypothesis that an increase in the percentage of the sustainability target as part of total remuneration causes a higher level of sustainable development. A multinomial logistic regression is used to test this hypothesis and a multinomial probit regression functions as a robustness check.

In the multinomial logistic regression model different levels of sustainable development are compared against a base level of sustainable development and the consequent change in the probabilities of each outcome is calculated. Due to limited observations for all levels of sustainable development, only neutral development, little improvement and significant improvement, respectively level 4, 5 and 6, of the sustainability targets are included in the model. One of the assumptions of the multinomial logistic regression is the independence of irrelevant alternatives. However, since research finds that testing for this assumption often rejects the assumption when it should not be rejected and accepts the assumption when it should not be accepted (Cheng & Scott Long 2007), the models are not tested on this assumption.

Four sub-models are developed to test the independent variable percentage of the sustainability target and to control for continent, type of target and full-time equivalents in the multinomial logistic regression.

Table 11 provides the odds ratios of the compared levels of sustainable development over the base level

of sustainable development as a result of the multinomial logistic regression for each sub-model. If the odds ratio exceeds one this implies that the probability of the comparable outcome in comparison to the base outcome is higher after an increase in a continuous variable or after having a specific category in a categorical variable. Each model includes the independent variable percentage of the sustainability target as part of total executive remuneration and the three categories for the variable continent. In addition to measuring the effect of the percentage of the sustainability target on sustainable development, model A examines whether the likelihood of a specific level of sustainable development increases when environmental targets are adopted in comparison to social targets. Model B compares combined targets against environmental targets and omits social targets. Model C includes all three categories for sustainability targets. Model D, in addition, controls for full-time equivalents.

First of all, the multinomial logistic regression for model A inserts 120 observations in the model. The sample demonstrates no perfect prediction ( $z = 0$ ,  $p = 1$ ), so adjustments in the sample are unnecessary. The likelihood ratio chi-square of model A ( $\chi^2 = 6.83$ ,  $p = 0.5553$ ) indicates that the model is not statistically significant when compared to a model without independent variables. The Pseudo  $R^2$  measures the goodness-of-fit of the model after the inclusion of the independent variables. The value of goodness-of-fit is only 0.0262, so the inclusion of the independent variables only slightly increases the fit of the model. However, the relationship between the independent variables and the dependent variable should be emphasized more than increasing the goodness-of-fit (Wooldridge 2009). The low goodness-of-fit might be caused by the high frequency of social targets in comparison to environmental targets. The results indicate that the percentage of the sustainability target, continent and type of target do not affect the level of sustainable development. Given the fact that the model as a whole is not significant, this result is expected.

Secondly, model B does find significant results, despite the fact that only 80 observations are included in the model. Again there is no perfect prediction, so adjustments to the sample are unnecessary. Model B also examines the percentage of sustainability targets, but in addition it controls for the effect of adopting either environmental targets or combined targets. Social targets are omitted from the sample. The likelihood chi-square ratio ( $\chi^2 = 23.38$ ,  $p = 0.0029$ ) indicates that the model is statistically significant as a whole, and it is also the most significant model of the four sub-models. The Pseudo  $R^2$  is 0.1413 and is high in comparison to the other models. The percentage of the sustainability target of total executive remuneration again does not affect the level of sustainable development, even though the odds ratios for a lower level of sustainable development are large. An observation in North-America instead of Europe increases the odds of having little improvement in sustainable development over neutral sustainable development by 3.3644 at a significance level of 10%. Hence, the probability of little improvement over the probability of neutral sustainable development increases by 3.3644 when a sustainability target is rewarded in North-America instead of Europe. If the probabilities of little improvement and neutral sustainable development are equal in the initial situation, that is 0.5 each, the odds ratio equals 1.0000.

**Table 11 - Multinomial logistic regression**

Model → Base outcome↓	A			B			C			D			
	Compared outcome →			4	5	6	4	5	6	4	5	6	
		4	5	6		4	5	6		4	5	6	
4	Percentage target	-	0.0164	0.0619	-	0.6220	0.0002	-	0.3088	0.0264	-	0.2555	0.0059
	<i>Continent</i>												
	Europe	-	BASE	BASE	-	BASE	BASE	-	BASE	BASE	-	BASE	BASE
	North-America	-	2.2370	2.1002	-	3.3644*	0.3103	-	2.8799**	1.5085	-	4.0849***	3.8261**
	Other	-	1.8453	1.7114	-	4.8303**	0.5179	-	2.1244	1.1324	-	6.6496**	4.0870
	<i>Sustainability targets</i>												
	Social targets	-	BASE	BASE	-	-	-	-	BASE	BASE	-	BASE	BASE
	Environmental targets	-	0.6187	0.9124	-	BASE	BASE	-	0.6517	0.8807	-	0.3629	0.9262
	Combined targets	-	-	-	-	3.4949**	0.9187	-	2.1974*	0.8316	-	2.2889	0.8468
	FTEs	-	-	-	-	-	-	-	-	-	-	1.000001	1.000005
5	Percentage target	60.9887	-	3.7738	1.6077	-	0.0003	3.2386	-	0.0856	3.9140	-	0.0231
	<i>Continent</i>												
	Europe	BASE	-	BASE	BASE	-	BASE	-	BASE	-	BASE	-	
	North-America	0.4470	-	0.9388	0.2972*	-	0.0922***	0.3472**	-	0.5238	0.2448***	-	0.9367
	Other	0.5419	-	0.9274	0.2070**	-	0.1072**	0.4707	-	0.5331	0.1504**	-	0.6146
	<i>Sustainability targets</i>												
	Social targets	BASE	-	BASE	-	-	-	BASE	-	BASE	-	BASE	-
	Environmental targets	1.6164	-	1.4748	BASE	-	BASE	1.5345	-	1.3514	2.7554	-	2.5521
	Combined targets	-	-	-	0.2861**	-	0.2629*	0.4551*	-	0.3785**	0.4369	-	0.3700*
	FTEs	-	-	-	-	-	-	-	-	-	0.9999994	-	1.000005
6	Percentage target	16.1611	0.2650	-	5159.4650	3209.3150	-	37.8154	11.6766	-	169.4188	43.2858	-
	<i>Continent</i>												
	Europe	BASE	BASE	-	BASE	BASE	-	BASE	BASE	-	BASE	BASE	-
	North-America	0.4762	1.0651	-	3.2223	10.8408***	-	0.6629	1.9091	-	0.2614**	1.0676	-
	Other	0.5843	1.0782	-	1.9310	9.3271**	-	0.8831	1.8760	-	0.2447	1.6270	-
	<i>Sustainability targets</i>												
	Social targets	BASE	BASE	-	-	-	-	BASE	BASE	-	BASE	BASE	-
	Environmental targets	1.0960	0.6781	-	BASE	BASE	-	1.1355	0.7400	-	1.0797	0.3918	-
	Combined targets	-	-	-	1.0884	3.8040*	-	1.2025	2.6423**	-	1.1809	2.7029*	-
	FTEs	-	-	-	-	-	-	-	-	-	0.9999948	0.9999954	-
	Observations	120		80				174			133		
	$\chi^2$	6.83		23.38				17.96			27.86		
	P-value $\chi^2$	0.5553		0.0029				0.0557			0.0058		
	Pseudo R <sup>2</sup>	0.0262		0.1413				0.0484			0.0974		

4 = neutral sustainable development

5 = little improvement in sustainable development

6 = significant improvement in sustainable development

BASE = Base outcome

\* = Significant at a 10% level

\*\* = Significant at a 5% level

\*\*\* = Significant at a 1% level

An observation in North-America increases the odds ratio by 3.3644 from 1.0000 to 3.3644, so it increases the probability of little improvement to 0.77 and decrease the probability of neutral development to 0.23. Further, an observation in North-America instead of Europe also increases the odds ratio of little improvement over significant improvement in sustainable development by 10.8408 at a significance level of 1%. Here, in similar reasoning, the probability of little improvement increases from 0.5 to 0.92 and the probability of significant improvement decreases from 0.5 to 0.08.

An observation in the category Other also increases the likelihood of little improvement in sustainable development. When a sustainability target is adopted in non-European and non-North-American countries instead of a European country, the odds ratio of little improvement over no change in sustainable development increases by 4.8303 and the odds ratio of little improvement in sustainable development over significant improvement in sustainable development increases by 9.3271 at a 5% significance level. Hence, when comparing North-America and Other to Europe it is found that there is a significant likelihood that it results in little improvement of sustainable development in comparison to neutral or significant improvement in sustainable development. The increase in the probability of little improvement over significant improvement is larger than the increase in the probability of little improvement over neutral development for both the category North-America and Other ( $10.8408 > 3.3644$ ;  $9.3271 > 4.8303$ , respectively). Hence, a North-American or Other observation in comparison to a European observation is more likely to switch from significant improvement to little improvement than from neutral development to little improvement. So, the probability of a decline is larger than the probability of an increase in the level of sustainable development. The overall effect of the variable continent is also found to be significant at a 5% significance level.

In addition, the adoption of a combined target instead of an environmental target increases the odds by 3.4949 of little improvement in sustainable development over neutral sustainable development at a significance level of 5% and also increases the odds by 3.8040 of little improvement over significant improvement at a significance level of 10%. Hence, there is a high likelihood for a combined target in comparison to an environmental target to have little improvement in sustainable development. The overall effect of the type of targets is also significant at a 10% significance level.

Thirdly, model C extends model A and B by including all three categories of sustainability targets instead of only two categories. Again there is no perfect predictability, so no observations are omitted. This results in a model of 174 observations. The inclusion of the category social targets in addition to environmental targets and combined targets decreases the significance of the model. The likelihood chi-square ratio ( $\chi^2 = 17.96$ ,  $p = 0.0557$ ) still indicates that the model is statistically significant as a whole, but only at a significance level of 10%. The Pseudo R<sup>2</sup> is also low (0.0484) in comparison to model B and D. Again, the percentage of sustainability targets as part of total executive remuneration is not found to be significant, but the odds ratios for lower levels are still relatively large. Additionally, an observation in North-America in comparison to Europe increases the odds by 2.8799 of little

improvement in sustainable development instead of neutral development at a significance level of 5%. Hence, an observation in North-America has a larger likelihood of little improvement in sustainable development in comparison to Europe. However, in contradiction to model B, the likelihood of little improvement over significant improvement is not significant, so it only leads to improvement in this sub-model. The category Other is not significant in this model. The overall effect of continent is also not significant ( $p = 0.1338$ ).

The type of target in model C compares environmental targets and combined targets to social targets. Only the category combined targets significantly alters the likelihood of having a specific level in sustainable development. The odds of little improvement over neutral development and little improvement over significant improvement in sustainable development increases by 2.1974 and 2.6423, respectively, when the observation is a combined target instead of a social target at a significance level of 10% and 5%, respectively. Thus, there is a high likelihood for combined targets in comparison to social targets to have little improvement in sustainable development. Moreover, the variable type of targets has an overall significant effect on sustainable development at a 10% significance level.

Fourthly and lastly, model D extends model C by the variable full-time equivalents. The inclusion of this variable decreases the number of observations to 133. In comparison to model C the likelihood chi-square ratio is improved ( $\chi^2 = 27.86$ ,  $p = 0.0058$ ) and the Pseudo R<sup>2</sup> is also higher (0.0974). The sample size is still relatively large and the model is statistically significant as a whole. Notwithstanding the increased odds ratios in comparison to model C, the percentage of sustainability targets of total executive remuneration remains insignificant when the model controls for full-time equivalents. An observation in North-America instead of Europe still significantly affects the level of sustainable development. However, in model D it increases the odds of little improvement and significant improvement in comparison to neutral development by 4.0849 and 3.8261, respectively, at a significance level of 5%. Hence, an observation from North-America instead of Europe increases the likelihood of a higher level of sustainable development. If the probabilities of both levels are equal in the initial situation, an increase in the odds ratio by 4.0849 results in an increase of the probability of little improvement to 0.80 and a decrease in the probability of neutral development to 0.20. Likewise, an increase in the odds ratio by 3.8261 increases the probability of significant improvement to 0.79 and decreases the probability of neutral development to 0.21. This result contradicts with the result in model B, where the likelihood of little improvement is highest in comparison to neutral and significant sustainable development. The category Other in comparison to Europe also increases the odds of little improvement over neutral development and thus, increases the level of sustainable development. This result also contradicts with the results in model B, where Other leads to little improvement in comparison to both neutral and significant improvement in sustainable development. The variable continent is found to have an overall significant effect on sustainable development at 5% significance level.

Similar to model C, type of targets is only significant for combined targets over social targets; the odds of little improvement over significant improvement increases with a combined target instead of a social target by 2.7029 at a significance level of 10%. However, unlike model C, a combined target instead of a social target does not significantly increase the odds of little improvement over neutral development. Hence, a lower level of improvement is more likely when a combined target is adopted instead of a social target. The type of target has an overall significant effect on sustainable development at a 10% significance level.

Even though the inclusion of the variable full-time equivalents increases the significance of the model, full-time equivalents is not found to affect the level of sustainable development and even if the effect was significant the odds ratios are extremely close to one, so this effect would be negligible.

In summary, none of the models finds significant evidence for an effect of the percentage of the sustainability target of total executive remuneration on sustainable development. Each model finds odds ratios that are positive towards lower levels of sustainable development, so if the coefficient is significant this would imply that a higher level of the percentage of the sustainability target leads to a lower level of sustainable development. However, the coefficient of the percentage of the sustainability target is not significant in any of the models. Hence, the hypothesis that a higher percentage of the sustainability target of total executive remuneration increases the level of sustainable development is rejected.

Despite the insignificance of the independent variable, some of the control variables in model B, C and D do significantly affect the level of sustainable development. In model B, it is found that without the inclusion of social targets and full-time equivalents in the sample, the observations from North-America or Other instead of Europe have a high likelihood of little improvement in sustainable development. A combined target instead of an environmental target also has a high likelihood of little improvement. However, in model C, the significance of the model decreases and only two significant coefficients remain. One significant effect is the increase in the odds ratio of little improvement over neutral development for an observation in North-America instead of Europe. The other significant effect is that combined targets in comparison to social targets have a large likelihood of little improvement in sustainable development over neutral development and significant improvement. In model D, the inclusion of all control variables in the model finds that North-America in comparison to Europe increases sustainable development to little improvement or significant improvement. The category Other also encourages sustainable development to little improvement. Hence, both continents improve sustainable development in comparison to Europe when all control variables are included in the model. In addition, a combined target in comparison to a social target is found to discourage sustainable development from significant improvement to little improvement in sustainable development, so social targets lead to a higher development. Full-time equivalents, however, is not found to be significant.

Of the four models that are examined only model B and D are significant at a 1% significance level. Because model D includes more observations in the model in comparison to model B, controls for all variables and still remains significant at a 1% significance level, the results of model D are more inclined to represent reality than model B. The only reason to regard model B as a better representation of reality is that the goodness-of-fit is higher in model B than in model D. However, the relationship between the independent variables and control variables, and the dependent variable is more important than a higher goodness-of-fit (Wooldridge 2009). Thus, in comparison to the other sub-models, model D most accurately represents reality.

To determine whether the results are persistent when using another test, a multinomial probit regression is performed in each four sub-models. Table 12 shows the results of this robustness check. In contradiction to the multinomial logistic regression which states the odds ratios, the coefficient in the multinomial probit regression have a different interpretation. If the odds ratio in the multinomial logistic regression exceeds one the likelihood of the compared outcome is greater than the base outcome. In the multinomial probit regression a positive coefficient implies that the compared outcome is more likely than the base outcome, however, the model does not calculate the probabilities of the levels of sustainable development. Since the multinomial probit regression is similar to the multinomial logistic regression and only functions as a robustness check, the comparison of the significance levels is sufficient as robustness check. The significance of the coefficients in the multinomial probit regression is comparable to the significance levels of the multinomial logistic regression. Only the significance of the category Other increases in model B and the significance level of model B and D is 5% instead of 1%. Still, the models remain significant. The other coefficients find similar significance levels to the multinomial logistic regression. Given the fact the significance levels of the multinomial probit regression are similar to the multinomial logistic regression it is concluded that the results of the multinomial logistic regression are robust.

To conclude, both the multinomial logistic and probit regression do not find significant evidence for a relationship between the percentage of the sustainability target of total remuneration and sustainable development, so hypothesis 3 is rejected. The type of continent and type of target do affect the level of sustainable development, but the amount of full-time equivalents in the company does not affect sustainable development.

**Table 12 - Multinomial probit regression**

Model → Base outcome ↓	A			B			C			D			
	Compared outcome →			4	5	6	4	5	6	4	5	6	
		4	5	6		4	5	6		4	5	6	
4	Percentage target	-	-3.3227	-2.2211	-	-0.5080	-5.0366	-	-0.9253	-2.6387	-	-0.9514	-3.7201
	<i>Continent</i>												
	Europe	-	BASE	BASE	-	BASE	BASE	-	BASE	BASE	-	BASE	BASE
	North-America	-	0.6502	0.5924	-	0.9702*	-0.7618	-	0.8335**	0.3205	-	1.1196***	1.0599**
	Other	-	0.5110	0.4249	-	1.2464**	-0.4412	-	0.6021	0.1047	-	1.4958**	1.0461
	<i>Sustainability targets</i>												
	Social targets	-	BASE	BASE	-	-	-	-	BASE	BASE	-	BASE	BASE
	Environmental targets	-	-0.4065	-0.0741	-	BASE	BASE	-	-0.3766	-0.1301	-	-0.8226	-0.0671
	Combined targets	-	-	-	-	1.0191**	-0.0151	-	0.6274*	-0.1335	-	0.6539	-0.0959
	FTEs	-	-	-	-	-	-	-	-	-	-	0.0000	0.0000
	Constant	-	-0.1692	-0.4843	-	-1.0744**	0.0801	-	-0.4058	-0.2785	-	-0.4750	-0.6931
5	Percentage target	3.3227	-	1.1016	0.5080	-	-4.5287	0.9253	-	-1.7135	0.9514	-	-2.7687
	<i>Continent</i>												
	Europe	BASE	-	BASE	BASE	-	BASE	BASE	-	BASE	BASE	-	BASE
	North-America	-0.6502	-	-0.0577	-0.9702*	-	-1.7320***	-0.8335**	-	-0.5130	-1.1196***	-	-0.0598
	Other	-0.5110	-	-0.0860	-1.2464**	-	-1.6876***	-0.6021	-	-0.4974	-1.4958**	-	-0.4497
	<i>Sustainability targets</i>												
	Social targets	BASE	-	BASE	-	-	-	BASE	-	BASE	BASE	-	BASE
	Environmental targets	0.4065	-	0.3324	BASE	-	BASE	0.3766	-	0.2464	0.8226	-	0.7555
	Combined targets	-	-	-	-1.0191**	-	-1.0342*	-0.6274*	-	-0.7609**	-0.6539	-	-0.7498*
	FTEs	-	-	-	-	-	-	-	-	-	0.0000	-	0.0000
	Constant	0.1692	-	-0.3151	1.0744**	-	1.1546**	0.4058	-	0.1273	0.4750	-	-0.2182
6	Percentage target	2.2211	-1.1016	-	5.0366	4.5287	-	2.6387	1.7135	-	3.7201	2.7687	-
	<i>Continent</i>												
	Europe	BASE	BASE	-	BASE	BASE	-	BASE	BASE	-	BASE	BASE	-
	North-America	-0.5924	0.0577	-	0.7618	1.7320***	-	-0.3205	0.5130	-	-1.0599**	0.0598	-
	Other	-0.4249	0.0860	-	0.4412	1.6876***	-	-0.1047	0.4974	-	-1.0461	0.4497	-
	<i>Sustainability targets</i>												
	Social targets	BASE	BASE	-	-	-	-	BASE	BASE	-	BASE	BASE	-
	Environmental targets	0.0741	-0.3324	-	BASE	BASE	-	0.1301	-0.2464	-	0.0671	-0.7555	-
	Combined targets	-	-	-	0.0151	1.0342*	-	0.1335	0.7609**	-	0.0959	0.7498*	-
	FTEs	-	-	-	-	-	-	-	-	-	0.0000	0.0000	-
	Constant	0.4843	0.3151	-	-0.0801	-1.1546**	-	0.2785	-0.1273	-	0.6931	0.2182	-
	Observations	120			80			174			133		
	Wald χ	6.31			18.73			16.59			24.23		
	P-value χ	0.6123			0.0164			0.084			0.0189		
	Pseudo R	-			-			-			-		

4 = neutral sustainable development

5 = little improvement in sustainable development

6 = significant improvement in sustainable development

BASE = Base outcome

\* = Significant at a 10% level

\*\* = Significant at a 5% level

\*\*\* = Significant at a 1% level

### 5.3 Conclusion

To conclude, firstly, the qualitative analysis finds that 33% of the companies in the sample reward sustainability targets in executive remuneration. Australia and Canada most frequently apply sustainable remuneration, whereas Finland and Sweden least frequently apply sustainable remuneration. In rewarding sustainability, most companies focus on targets that relate to combined targets or social targets, only rewarding environmental targets happens seldom. In addition, short-term sustainability targets are more frequently observed in the annual reports than long-term sustainability targets.

Secondly, the descriptive statistics find that 40% of the companies reward sustainability targets in executive remuneration. Of these companies, mainly companies situated in Anglo-Saxon countries appear to apply sustainable remuneration. The focus in sustainable remuneration is again often on short-term remuneration and social targets are found to be most often rewarded in both the short-term and long-term. Furthermore, companies that do not reward sustainability targets indicate that the contribution to sustainability in another way is the most important reason.

Thirdly and lastly, the results from the quantitative analysis indicate that the hypothesis that sustainability targets encourage sustainable development is true. The hypothesis that sustainable development as a result of short-term and long-term sustainability targets is equal is also true. However, the hypothesis that a higher percentage of the sustainability target of total executive remuneration increases sustainable development is rejected.

## **6 Discussion**

The previous chapter demonstrated the results of the different statistical tests to test the three hypotheses. In this chapter, we discuss the results of the qualitative and quantitative analyses, and consequently give an answer to the research question. In addition, we name the limitations and suggest potential extensions of this study.

### **6.1 Interpretation results**

The data in this thesis is analysed by means of triangulation. First, we discuss the observations of the data from the qualitative and quantitative analyses. Secondly, we elaborate on the results of the quantitative analysis.

#### **6.1.1 Observations from the data**

Firstly, our qualitative analysis shows that roughly one-third of the companies in the total sample of 490 companies worldwide adopts sustainability targets in their executive remuneration. This percentage is close to the indication of Eurosif & EIRIS (2010), which states that 29% of the 300 largest listed companies in Europe adopt sustainable remuneration. However, it is lower than the 50% indicated by Accenture and United Nations Global Compact (2010). Since Eurosif & EIRIS is more objective than the 800 CEOs in the Accenture and United Nations Global Compact research, it is expected that the frequency of sustainable remuneration in the qualitative research is close to the percentage of Eurosif & EIRIS. However, the above mentioned reports are based on the year 2009 and we study sustainable remuneration in 2010 and taking into consideration that this topic is relatively dynamic, the percentages are difficult to compare.

When looking at the different countries in the qualitative analysis, we find that Canada and Australia are the frontrunners in the application of sustainable remuneration, whereas Scandinavian countries are the laggards. Notwithstanding the high scores of Scandinavian countries on world's most innovative countries' rankings (Economist Intelligence Unit 2009), most Scandinavian countries seem to be quite conservative in the adoption of sustainable remuneration. Only Norway has an average percentage of sustainable remuneration. The Netherlands, Norway, UK and USA have an average application of sustainable remuneration and France and Germany score relatively low. When comparing Europe to the USA, similar percentages of the frequency of sustainable remuneration are found. On average, 26% of the companies in Europe reward sustainability targets in executive remuneration, whereas 28% of the companies in the USA applies sustainable remuneration. Hence, the difference between the USA and Europe are only small.

Additionally, our analysis demonstrates that companies focus mainly on social targets or combined targets and ignore solely environmental targets. Adoption of environmental targets is mostly accompanied by social targets, while social targets are also used as the only sustainability targets in

sustainable remuneration. A potential explanation for the major focus on social targets is that social targets might be highly valued by customers, e.g. customer satisfaction, and consequently leads to shareholder value creation. However, limited existing literature mainly focuses on environmental targets in remuneration, which contradicts with the results of the application of mostly social and combined targets. Environmental targets might be easier to measure than social targets, and are therefore more often examined in the existing research.

Furthermore, we find that companies have a larger focus on the short-term when adopting sustainability targets in executive remuneration. These results are comparable to the quantitative analysis, as we find that 37 companies adopt short-term targets and 28 companies adopt long-term targets. Based on the survey, we find that companies with sustainable remuneration reward 3.7 short-term targets and 2.7 long-term targets, on average. The difference in focus, however, is larger in the qualitative analysis, where companies mainly state to include sustainability targets in short-term remuneration. A possible explanation for the difference between annual reports and the survey could be that companies are more discrete about their long-term remuneration targets in their annual reports, so sustainability targets in the long-term are not publicly available. The results from the survey diminish the gap between the time frames, but the gap still remains in terms of the number of sustainability targets per time frame. This is in contradiction with the philosophy of sustainable development, which argues that one should take into account the needs of future generations in addition to present generations (World Commission on Environment and Development 1987), and hence targets should focus both on the short-term and long term in executive remuneration.

Nevertheless, when looking at the percentage of sustainable remuneration of total short-term and total long-term remuneration, it is found that, on average, 37.1% of the total short-term remuneration, and 40.4% of total long-term remuneration are related to sustainability targets. The results indicate that the focus on the short-term or long-term in terms of percentages of total remuneration is similar. However, the percentages of the sustainability targets in the short-term as part of total remuneration are lower than in the long-term. This is explained by the higher amount of short-term sustainability targets in sustainable remuneration in comparison to long-term sustainability targets. Thus, sustainability is most often rewarded in the short-term, but the percentages of sustainable remuneration are equal in the short-term and long-term.

The higher frequency of the reward of short-term sustainability targets is in line with the view that executives prefer cash rewards over equity awards (Beatty & Zajac 1994). However, cash rewards are less effective in increasing firm performance than equity rewards (Jensen & Murphy 1988; Mehran 1995), implying that to increase sustainable development a larger focus should be on long-term sustainability targets instead. The survey results find that the sustainable development as a result of long-term targets is higher than sustainable development of short-term targets, on average. Based on

research by Jensen & Murphy (1988) and Mehran (1995) a higher level of sustainable development for long-term targets instead of short-term targets could be expected.

In addition, the quantitative analysis indicates that 40% of the companies in the total sample adopt sustainable remuneration, which is slightly higher than the results from the qualitative analysis and Eurosif & EIRIS (2010), but lower than the results from the study of Accenture and United Nations Global Compact (2010) among 800 CEOs worldwide. The results do not coincide with either percentages of the reports, but are exactly in between. Given the different years under study, it is hard to compare our results to the results of the above mentioned reports. Comparing the percentage of the quantitative analysis (40%) to the qualitative analysis (33%) finds that the quantitative has a larger frequency of sustainable remuneration. This could be due to the smaller sample size in the quantitative analysis. In the qualitative analysis 490 companies are examined, whereas only 122 companies participate in the survey conduct.

Furthermore, the descriptive statistics of the survey results show that only seven countries include more than two companies with sustainable remuneration. A majority of these companies focus on the short-term in sustainable remuneration and none of these countries have more companies that reward sustainability targets in the long-term than in the short-term. Australia and the UK have a substantial higher frequency of short-term sustainable remuneration in comparison to long-term sustainable remuneration. The Netherlands, however, has an equal frequency of the different time frames in sustainable remuneration. A plausible explanation could be that sustainability is an important issue in many listed companies in the Netherlands (Hewitt Associates 2009) and accordingly is a focus point in remuneration in both the short-term and the long-term. This also explains why the Netherlands is also the only country that has an equal division between the frequency of social and environmental targets, while most countries reward targets related to social issues instead of environmental or combined targets. The large focus on social targets in most countries can be explained by a higher valuation of social targets by customers. Higher valuation by customers consequently creates shareholder value. Shareholders are therefore more inclined to encourage social targets in remuneration instead of environmental or combined targets.

In contradiction to the rather converged results for sustainable remuneration in countries, the descriptive statistics for industry shows a rather dispersed view. The frequency of sustainable remuneration is highest in the basic materials industry. Sustainability targets in executive remuneration are least popular in the technology industry, where sustainability targets are not rewarded at all. The high scrutiny in the basic materials industry could explain the high level of sustainable remuneration and the low scrutiny in technology industry could explain the unpopularity of sustainable remuneration. Oil and gas industry appears to focus on short-term sustainable remuneration only and have the lowest level of average development, but since it concerns only three instances, it is difficult to draw conclusions based on this information. Consumer goods is the only industry in which a company solely focuses on environmental

targets. In addition, consumer goods is also the only industry with an equal division between the frequency of social targets and environmental targets. All other industries have a large focus on social targets.

Additionally, companies with more than 50,000 full-time equivalents focus both on short-term and long-term sustainable remuneration, while companies with full-time equivalents between 20,000 and 50,000 mainly focus on short-term targets. Again, larger companies might face more scrutiny and hence, are more forced to include sustainability targets in short-term and long-term executive remuneration. Another plausible explanation is that larger companies might be more advanced in their sustainability policy and as result also reward sustainability targets in executive remuneration. Companies with less than 20,000 full-time equivalents, however, do not appear to have a focus on a specific time frame.

Even though the survey finds that 40% of the participants adopt sustainability targets in their executives' remuneration, still the majority abstain from sustainable remuneration. Contribution to sustainability in another way is most often named as the reason to refrain from sustainable remuneration. Thus, many companies do pursue sustainable development, but only in another way. In addition, some companies indicate that sustainability targets in executive remuneration do not coincide with their business strategy. A majority of the companies in the industry industrials, telecommunications and technology provide this as the reason. In addition, previous research finds that a negative relationship between sustainable development and financial performance exists (Victoria Lopez et al. 2007), however, only one company names this as a reason. Even though 48% of the companies that currently do not apply sustainable remuneration are determined that they will remain doing so in the future, the fact that 16% indicates that they will include sustainability targets in executive remuneration in the future and that 31% is still discussing this topic, is a signal that the application of sustainable remuneration is a continuous process.

### 6.1.2 Improvement of sustainable development

Based on one-sample tests it is tested whether sustainability targets are effective in encouraging sustainable development. Sustainability targets in the total sample significantly encourage sustainable development. Subdivision by time finds that both the short-term and long-term sustainability targets are found to be effective in encouraging sustainable development. Hence, both short-term and long-term sustainability targets encourage sustainable development. These results contradict with the research by Deckop et al. (2006), where a negative short-term relationship and a positive long-term relationship between CEO remuneration and social and environmental performance are found. The difference could be explained by the general link and the variables chosen in the analysis. Deckop et al. (2006) investigate the general link between sustainable remuneration and sustainable development, and limit their research to employee, community, product, environment, diversity and human rights. This study looks at the explicit link between sustainability targets in remuneration and the subsequent development, and focuses on a broader range of indicators.

Furthermore, subdivision by type of sustainability targets also finds that social, environmental and combined targets encourage sustainable development. Increase in environmental performance corresponds to the results by Cordeiro and Sarkis (2008), who demonstrate that compliance index and spill index are significantly positive related to CEO remuneration. However, the results contradict with the results of Berrone and Gomez-Mejia (2009), who examine pollution prevention and end-of-pipe pollution control and find a negative relationship. It can be concluded that sustainable development is dependent on the chosen indicators, but since this study focuses on a broad range of sustainability indicators collected from annual reports, the specific selection of targets should not bias the outcomes of sustainable development. There is no difference in the results of the parametric and non-parametric test, so it is concluded that all types of sustainability targets and both time frames lead to improvement levels of sustainable development.

#### 6.1.3 The difference in sustainable development between short-term and long-term targets

Contrary to the individual analysis of the six samples, hypothesis 2 tests the relationship between short-term and long-term sustainability targets. The descriptive statistics show that short-term targets are included more often in sustainable remuneration than long-term targets, but long-term targets have a higher level of sustainable development, on average. By means of two-sample test, it is tested whether a difference exists between the time frames' focus of sustainability targets. After the correction for the requirement of independent samples, no evidence is found that there is a difference in sustainable development caused by short-term targets and long-term targets. Rewards in the long-term do not encourage sustainable development to a larger extent than short-term rewards, which contradicts with the study by Jensen and Murphy (1988) and Mehran (1995), since they state that long-term rewards are most effective in increasing firm performance. So, the results in this study indicate that companies are not required to focus on a specific time frame to incentivize the executive to pursue sustainable development.

#### 6.1.4 The effect of the percentage of the target on sustainable development

The tests for hypothesis 1 and 2 only look at the development of sustainability targets and do not test the effect of other variables on the dependent variable. The multinomial logistic regression also looks at the effect of the continent and full-time equivalents of the company, and the type of sustainability target. Nevertheless, the main focus of the regression is the percentage of the sustainability target as part of total executive remuneration.

None of the four sub-models finds that the percentage of the sustainability target affects the level of sustainable development. Thus, a higher percentage of the sustainability target does not lead to a higher level of sustainable development. Taken into consideration that hypothesis 1 is true, companies should therefore not focus on the percentage of the sustainability targets, but bear in mind that the inclusion of the target itself already leads to sustainable development. Thus, executives are deemed to be indifferent

towards the height of the percentage of the sustainability target. Including the target is already sufficient to encourage executives to pursue sustainable development.

Besides, by considering that hypothesis 2 is also true, there is also no difference between the sustainable developments caused by short-term targets or long-term targets, so in order to improve sustainable development companies do not have to focus on a specific time frame. Executives are also indifferent towards the time frame of the reward of sustainability targets. As a result, the inclusion of sustainability targets is sufficient in order to contribute to sustainable development and a company neither has to bear in mind the percentage of the sustainability target nor the time frame of the remuneration in incentivizing the executive to obtain a higher level of sustainable development.

In addition to testing the effect of the percentage of the sustainability targets, the models also control for other variables. Only two models are significant at a 1% level. The most extended version of the sub-models is the most accurate representation of reality, since the model is statistically significant, includes 133 observations, controls for each category in continent and type of target, and also controls for full-time equivalents. Unlike the insignificance of the independent variable, this model does find significant evidence for the continent and type of targets. The model finds that an observation in North-America instead of Europe increases the level of sustainable development. Companies in North-America are therefore more inclined to have a higher level of sustainable development than companies in Europe. A possible explanation could be that executives in North-America are triggered more by incentives to gain rewards than their European counterparts and also act accordingly. Countries not positioned in North-America or Europe also increase the level of sustainable development. A high representation of Australian observations might cause this effect. Australian executives might also be more inclined to pursue pay for performance than their European counterparts.

Furthermore, a combined target in comparison to a social target decreases improvement in sustainable development. A potential explanation is that combined targets focus both on social and environmental targets in one target, e.g. several targets in the combined target CSR, which could make it more difficult to improve its sustainable development. On the contrary, a social target has only one focus point, e.g. customer satisfaction, which makes it easier to pursue its development. According to this reasoning a similar effect should hold for combined targets in comparison to environmental targets. The sub-model which tests this relationship finds that combined targets have a high chance of little improvement instead of neutral development or significant improvement. Hence, it does not lead to neutral development, but does not lead to significant improvement either; the sustainable development is exactly in between. This model, however, includes 53 observations less than the most representable model, so results are less accurate. Thus, the difference between combined targets and social targets is more reliable than the difference between combined targets and environmental targets. A social target in comparison to an environmental target, however, does not lead to a change in the level of sustainable development, so the effect only holds when compared to combined targets. In addition, a social target

might lead to a higher level of development because it is more encouraged by shareholders since social targets are valued by customers and consequently also increases shareholder value. To improve the sustainable development of social targets companies should therefore include the targets as individual targets in executive remuneration and not as part of combined targets such as CSR or reputation.

Thus, we find that executives are not triggered by a higher percentage of the sustainability target in their remuneration nor are they incentivized by a short-term or long-term reward. Inclusion of the sustainability target is sufficient for a contribution to sustainable development. In addition, executives in non-European countries are more triggered to pursue sustainable development than their European counterparts. And lastly, social targets are more inclined to increase the level of sustainable development than combined or environmental targets.

## 6.2 Limitations

Despite the significant evidence of the encouragement of sustainable development as a result of sustainability targets in executive remuneration, there are some limitations to the methods chosen in this study. For example, our model faces three biases as part of internal invalidity. First of all, the dependent variables in all hypotheses are determined by the perception of the participants in the survey. One way to decrease this inaccuracy is to invite people with substantial knowledge on executive remuneration, but still some degree of perception remains. This dependency of the dependent variable on the perception of the participants could cause errors-in-variables bias in the data. Secondly, the model is potentially subjected to omitted variables bias. The inclusion of more control variables could increase the validity of the model. Thirdly, the method of sample selection possibly biases the results and also decreases the external validity of the model.

Furthermore, there are only 49 companies in the sample who adopt sustainable remuneration. Only 41 companies disclosed full-time equivalents, which severely limits our sample size. A larger sample size would enhance the accuracy of our results and would furthermore provide a better representation of the countries and industries worldwide, and via this way also improve external validity.

Additionally, the models in the multinomial regression generally have a low goodness-of-fit, so the independent variables explain only little of the fit of the model. A higher goodness-of-fit would imply that the independent variables have more explanatory power in the fit of the model, and hence in the prediction of the dependent variable.

In conclusion, we deem internal and external invalidity, the small samples size and low goodness-of-fit are deemed as the most significant limitations in this study.

### 6.3 Possible extensions

Given the limitations outlined above, there are several possible extensions of this study. First of all, the internal validity could be improved by decreasing the dependency on perception, increasing the amount of control variables in the model and improving the manner of sample selection. Improving the manner of sample selection also increases the external validity. Secondly, the inclusion of more companies increases the sample size of the analysis and makes the results more reliable. Thirdly, the inclusion of more companies also increases the accuracy of the drawn conclusions based on industry and country and might also increase the goodness-of-fit of the model.

In addition to addressing the limitations of this study, a possible extension of this study could be to include economic performance in the analysis. This study focuses on two bottom lines of the triple bottom lines of Elkington (1997), since it is assumed that executives already get rewarded for financial performance. In a follow-up study, the third bottom line, economic performance, may also be included. Inclusion of the economic bottom line may influence the degree of sustainable development.

Furthermore, the research could be extended to a time-series analysis. This thesis solely focuses on sustainable development as a result of sustainable remuneration in the year 2010. An analysis for multiple years can determine whether the application of sustainable remuneration has changed over time and whether the subsequent development has also changed. Such an analysis determines whether sustainable remuneration becomes more (un)popular over time. Moreover, a possible extension could be to examine the company's view on sustainable remuneration over time and how the company experiences the influence of the sustainability targets in executive remuneration.

Also, a potential extension could be to control for the contribution to sustainability in other ways. Companies which already participate in social commitment projects might gain a different degree of sustainable development if they also include sustainability targets in executive remuneration.

To summarize, possible extensions of this study are the addressing of the limitations, inclusion of economic performance, execute time-series analysis and control for other types of contributions to sustainability.

### 6.4 Conclusion

In conclusion, testing the three hypotheses finds that hypothesis 1 seems to hold true; sustainability targets significantly encourage sustainable development. Hypothesis 2 also seems to hold true; there is no difference in the sustainable development caused by short-term sustainability targets or long-term sustainability targets. We reject hypothesis 3, however, as a higher percentage of the sustainability target of total remuneration does not affect the level of sustainable development. The continent in which the company operates and the type of sustainability target that the company rewards, however, do affect the level of sustainable development. Thus, to answer the research question, sustainability targets as part

of executive remuneration do contribute to sustainable development, however, the percentage of the sustainability target and the moment of reward do not have to be taken into account in order to encourage sustainable development. Hence, executives are not incentivized by the percentage of the sustainability target nor by the moment of the reward. However, non-European executives are more inclined to pursue sustainable development than European executives. In addition, the type of target should be considered, since social targets lead to a higher level of sustainable development.

Nevertheless, the sample still faces some internal and external invalidity and together with the small sample sizes and low goodness-of-fit these are consider as the most significant limitations of this study. In extensions of this study these limitations could be addressed, but potential extensions are also the inclusion of economics performance, time-series analysis and controlling for other types of contributions to sustainability.

## 7 Conclusion

In this study, we provide an answer to the research question whether sustainability targets in executive remuneration contribute to sustainable development. As the current body of academic literature on this topic is limited, prior studies provide little guidance on this topic. The existing literature does, however, give an overview of the reasons to include and exclude sustainability in executive remuneration.

Proponents advocate that reasons for companies to incorporate sustainability targets in executive remuneration are that all stakeholders should be taken into account in remuneration policies and this explicit focus increases the priority given to sustainability. Also, it is argued that sustainability increases financial performance and that sustainability should be rewarded since it is part of key performance. Opponents of the inclusion of sustainability targets in executive remuneration, however, argue that it decreases financial performance and stakeholders do not advocate the same targets. Additionally, explicit inclusion of sustainability targets might decrease the intrinsic motivation for sustainability and the status of sustainability is difficult to monitor. Empirical research on the advantages and disadvantages, however, is limited to environmental performance as a result of environmental targets in executive remuneration.

This study provides an answer to this gap by conducting both qualitative and quantitative analysis. Initially, annual reports are assessed to determine the sustainability targets in sustainable remuneration. Consequently, a survey is conducted to examine the development of the issues related to the sustainability targets in executive remuneration in 2010.

Three hypotheses are developed to answer the research question. The first hypothesis, which states that sustainability targets encourage sustainable development, is found to be true in all samples. The second hypothesis, which asserts that there is no difference in sustainable development between short-term and long-term sustainability targets, is also true. The third hypothesis, however, which states that a higher percentage of the sustainability target of total executive remuneration increases sustainable development, is rejected. In testing the third hypothesis it is found that a higher percentage of the sustainability target does not affect the level of sustainable development. However, sustainability targets in North-America and other continents (non-North America and non-Europe) in comparison to Europe, and a social target in comparison to a combined target do lead to a relatively higher level of sustainable development.

To conclude, the results indicate that sustainability targets in executive remuneration do encourage sustainable development, however, executives are not incentivized by a higher percentage of the sustainability target nor by a short-term or long-term focus. The inclusion of sustainability targets in executive remuneration itself already encourages sustainable development. However, sustainability targets in remuneration of non-European executives are more likely to cause a higher level of sustainable development than sustainability targets in remuneration of their European counterparts. In addition, the type of target that is pursued also affects the level of sustainable development.

Thus, we find that sustainability targets in executive remuneration do matter in encouraging sustainable development. However, in order to have an actual sustainable impact, public and business support is required. This study can only academically contribute to the discussion of the effectiveness of sustainability targets in executive remuneration and we can only hope that this is enough to enhance business understanding for implementing sustainable remuneration more widely as well.

## REFERENCES

- Accenture, United Nations Global Compact. 2010. A new era of sustainability: UN Global Compact-Accenture CEO Study 2010: 46-56
- Bachmann, D. Elfrink, J., Vazzana, G. 1999. E-mail and snail mail face off in rematch. *Marketing Research* **11-4**: 11-15
- Baum, C.F. 2006. An introduction to modern econometrics using Stata. Stata Press: Texas
- Baysinger, B., Hoskisson, R.E. 1990. The composition of board of directors and strategic control: effects on corporate strategy. *The Academy of Management Review* **15-1**: 72-87
- Beatty, R.P., Zajac, E.J. 1994. Managerial incentives, monitoring, and risk bearing: A study of executive compensation. *Administrative Science Quarterly* **39-2**: 313-335
- Benson, B.W., Davidson, W.N. 2010. The relation between stakeholder management, firm value, and CEO compensation: A test of enlightened value maximization. *Financial Management* **39-3**: 929-964
- Berrone, P. 2008. Pros and cons of rewarding social responsibility at the top. IESE Occasional Paper **153**
- Berrone, P., Gomez-Mejia, L.R. 2009. Environmental performance and executive compensation: an intergrated agency-institutional perspective. *Academy of Management Journal* **52-1**: 103-126
- Bhagat, S., Romano, R. 2009. Reforming executive compensation: Simplicity, transparency and committing to the long-term. *Yale Law and Economics Research Paper* **393**
- Black, K. 2009. Business statistics: Contemporary decision making. Sixth edition. John Wiley & Sons, Inc.: Hoboken
- Bruce, A., Buck, T., Main, B.G.M. 2005. Top executive remuneration: A view from Europe. *Journal of Management Studies* **42-7**: 1493-1506
- CERES. 2010. The 21<sup>st</sup> century corporation: The CERES roadmap for sustainability
- Cheng, S., Scott Long, J. 2007. Testing for IIA in the multinomial logit model. *Sociological Methods & Research* **35**: 583-600
- Coombs, J.E., Gilley, K.M. 2005. Stakeholder management as a predictor of CEO compensation: Main effects and interactions with financial performance. *Strategic Management Journal* **26**: 827-840
- Cordeiro, J.J., Sarkis, J. 2008. Does explicit contracting effectively link CEO compensation to environmental performance? *Business Strategy and the Environment* **17**: 304-317
- Core, J.E., Guay, W.R., Larcker, D.F. 2003. Executive equity Compensation and incentives: A Survey. *Economic Policy Review* April 2003
- Core, J.E., Guay, W.R. 2010. Is pay too high or are incentive too low? A wealth-based contracting framework. Working Paper
- Deckop, J.R., Merriman, K.K., Gupta, S. 2006. The effect of CEO pay structure on corporate social performance. *Journal of Management* **32-3**: 329-342
- Economist Intelligence Unit. 2009. A new ranking of the world's most innovative countries. Economist Intelligence Unit report.
- Elkington, J. 1997. Cannibals with forks: The triple bottom line of 21<sup>st</sup> century business. Capstone: Oxford

- Enric Ricart, J., Ángel Rodríguez, M., Sánchez, P. 2005. Sustainability in the boardroom: An empirical examination of Dow Jones Sustainability World Index leaders. *Corporate Governance* **5-3**: 24-41
- Eurosif, EIRIS. 2010. Remuneration theme report: 3<sup>rd</sup> in a series
- Festinger, L., Katz, D. 1966. Research methods in the behavioural sciences. Holt, Rinehart and Winston: New York
- Financial Times. 2011, June 7<sup>th</sup>. Bonuses: Targets are linked to pay early adopters
- Finkelstein, S., Hambrick, D.C. 1989. Chief executive compensation: A study of the intersection of markets and political processes. *Strategic Management Journal* **10**: 121-134
- Frey, B.S., Jegen, S. 2001. Motivation crowding theory. *Journal of Economic Surveys* **15-5**: 589-611
- Hall, B.J., Liebman, J.B. 1998. Are CEOs really paid like bureaucrats? *The Quarterly Journal of Economics* **113-3**: 653-691
- Hewitt Associates. 2009. Rewarding sustainable growth: The link between sustainability and executive remuneration
- Jensen, M.C., Meckling, W.H. 1976. Theory of the firm: managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics* **3**: 305-360
- Jensen, M.C., Murphy, K.J. 1988. Are executive compensation contracts structured properly? Harvard Business School and University of Rochester Working Paper
- Jensen, M. C., Murphy, K.J. 1990a. CEO Incentives – It's not how much you pay, but how. *Harvard Business Review* **3**: 138-153
- Jensen, M.C., Murphy, K.J. 1990b. Performance pay and top-management incentives. *The Journal of Political Economy* **98-2**: 225-264
- Jobber, D., O'Reilly, D. 1998. Industrial mail surveys: A methodological update. *Industrial Marketing Management* **27**: 95-107
- Kiesler, S., Sproull, L.S. 1986. Response effects in the electronic survey. *Public Opinion Quarterly* **50**: 402-413
- King, A., Lenox, M. 2002. Exploring the locus of profitable pollution reduction. *Management Science* **48-2**: 289-299
- Klassen, R.D., McLaughlin, C.P. 1996. The impact of environmental management on firm performance. *Management Science* **42-8**: 1199-1214
- Kruse, C., Lundbergh, S., 2010. The governance of corporate sustainability. *Rotman International Journal of Pension Management* **3-2**: 46-51
- Lazear, E.P., 1998. Personnel Economics for managers. John Wiley & Sons, Inc.: New York
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R. 2000. Investor protection and corporate governance. *Journal of Financial Economics* **58**: 3-27
- Long, J.S., Freese, J. 2006. Regression models for categorical dependent variables using Stata. Second edition. StataCorp LP: Texas
- Lothe, S., Myrtveit, I., Trapani, T. 1999. Compensation systems for improving environmental performance. *Business Strategy and Environment* **8**: 313-321
- Malhotra, N.K., Birks, D.F. 2007. Marketing research: An applied approach. Third European edition. Pearson Education Limited: Essex

- Margolis, J.D., Walsh, J.P. 2003. Misery loves companies: Rethinking social initiatives by business. *Administrative Science Quarterly* **48**: 268-305
- McGuire, J., Dow, S., Argheyd, K. 2003. CEO incentives and corporate social performance. *Journal of Business Ethics* **45**: 341-359
- Mehran, H. 1995. Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics* **38**: 163-184
- Merriman K. K., Sen, S. 2011. Incenting managers towards the triple bottom line: An agency and social norm perspective. Available at SSRN: <http://ssrn.com/abstract=1790622>
- Murphy, K.J. 1998. Executive Compensation. *Handbook of Labor Economics* **3**
- Russo, M.V., Harrison, N.S. 2005. Organization design and environmental performance: Clues from the electronics industry. *Academy of Management Journal* **48**: 582-593
- Schneider, K.C. 1985. Uninformed response rates in survey research: New evidence. *Journal of Business Research* **13**: 153-162
- Sekaran, U. 2003. Research methods for business: A skill building approach. Fourth edition. John Wiley & Sons, Inc: New York
- Sheehan, K.B., Hoy, M.G. 1999. Using e-mail to survey internet users in the United States: Methodology and assessment. *Journal of Computer Mediated Communication* **4-3**
- Sheehan, K.B., McMillan, S.J. 1999. Response variation in e-mail surveys: An exploration. *Journal of Advertising Research* **39-4**: 45-54
- Shleifer, A., Vishny, R.W. 1997. A survey of corporate governance. *Journal of Finance* **52**: 737-783
- Stanwick, P.A., Stanwick, S.D. 2001. CEO compensation: Does it pay to be green? *Business Strategy and the Environment* **10**: 176-182
- Stock, J.H., Watson, M.W. 2007. Introduction to econometrics. Second edition. Pearson Education, Inc.: Boston
- VBDO, DHV, Hay Group. 2010. Sustainable remuneration: A guide linking sustainable goals to executive incentives.
- Victoria López, M., Garcia, A., Rodriguez, L. 2007. Sustainable development and corporate performance: A study based on the Dow Jones Sustainability Index. *Journal of Business Ethics* **75**: 285-300
- Waddock, S.A., Graves., S.B. 1997. The Corporate social performance-financial performance link. *Strategic Management Journal* **18-4**: 303-319
- Watt, J.H., 1999. Internet systems for evaluation research. *New Directions for Evaluation* **84**: 23-43
- Winter, J. 2010. Corporate governance going astray: Executive remuneration built to fail. *DSF Policy Paper* **5**
- Wooldridge, J.M. 2009. Introductory Econometrics. Fourth edition. South-Western Cengage Learning: Mason
- World Business Council for Sustainable Development. 2010. People matter reward: Linking sustainability to pay
- World Commission on Environment and Development. 1987. Our common future

## TABLES AND FIGURES

**Table 13 - Frequency of invitations per LinkedIn group**

LinkedIn groups	#
Executive Compensation Briefing	140
The Conference Board Executive Compensation Discussion Group	169
Chief Sustainability Officers Network	93
Society of Corporate Secretaries and Governance Professionals	137
Compensation Professional Network	27
Linked: HR - Compensation & Benefits	5
Global Compensation & Benefits Professional Network	43
Sustainability Professionals	51
Sustainability Executives Network (SENT) & Chief Sustainability Officers	9
MVO - Maatschappelijk Verantwoord Ondernemen	15
Executive Compensation Professional Network	40
Total	<b>729</b>

## **APPENDIX 1**

### **Survey**

Dear participant,

This survey is developed to determine the application of performance criteria related to sustainability in board of executives' remuneration. There are no right or wrong answers. Filling out the survey will only take you about 3 minutes. In the end you have the opportunity to make the survey anonymous, may you wish to do so.

Thank you very much for your participation.

Kind regards,

Sanne Rosendaal

#### **How does your company contribute to sustainability in terms of society and/or environment?**

*Mark the answer(s) that applies to your company - multiple answers possible*

- By participating in social commitment projects
- By the inclusion of sustainability targets in our business strategy
- By the inclusion of sustainability targets in our remuneration policy
- Not applicable
- Other (please specify):
- I prefer not to disclose this information - N.B. at the end of this survey you can make the survey anonymous

#### **Are performance criteria in your board of executives' remuneration policy related to sustainability (society and/or environment)?**

*Mark the answer(s) that applies to your company - multiple answers possible*

##### **Performance criteria related to sustainability:**

**Society:** health, safety, employee engagement, customer satisfaction, diversity, community involvement.

**Environment:** energy efficiency, eco-efficiency, emissions reduction, sustainable products.

**Society and environment:** sustainability rankings, CSR, stakeholders, reputation, responsible/sustainable investments.

- Yes
- No
- I prefer not to disclose this information - N.B. at the end of the survey you can make the survey anonymous

#### **Are performance criteria related to sustainability part of your short-term and/or long term incentives in the board of executives' variable remuneration?**

*Mark the answer(s) that apply to your company - multiple answers possible*

- Short-term incentives
- Long term incentives

#### **Performance criteria related to sustainability comprise ..% of our board of executives' short-term variable remuneration.**

*Mark the answer that applies to your company - only one answer possible*

- 5%
- 10%
- 15%
- 20%
- 25%
- 30%

- 35%
- 40%
- 45%
- 50%
- 55%
- 60%
- 65%
- 70%
- 75%
- 80%
- 85%
- 90%
- 95%
- 100%
- I prefer not to disclose this information - N.B. at the end of the survey you can make the survey anonymous

**Performance criteria related to sustainability comprise ..% of our board of executives' long term variable remuneration.**

*Mark the answer that applies to your company - only one answer possible*

- 5%
- 10%
- 15%
- 20%
- 25%
- 30%
- 35%
- 40%
- 45%
- 50%
- 55%
- 60%
- 65%
- 70%
- 75%
- 80%
- 85%
- 90%
- 95%
- 100%
- I prefer not to disclose this information - N.B. at the end of the survey you can make the survey anonymous

**What are the focus points in the performance criteria related to sustainability in your short-term variable remuneration?**

*Mark the answer(s) that apply to your company - multiple answers possible*

- Health
- Safety
- Employee engagement
- Customer satisfaction
- Diversity
- Community involvement
- Energy efficiency

- Eco-efficiency
- Emissions reduction
- Sustainable products (e.g. recycling, eco-products)
- Sustainability rankings (e.g. DJSI)
- CSR
- Stakeholders
- Reputation
- Responsible/sustainable investments
- Other (please specify):

**What is the composition of the focus points in the performance criteria related to sustainability in your short-term variable remuneration?**

*Total should be equal to 100%; e.g. Safety 30%, Energy efficiency 40%, Emissions reduction 30%.*

- Health ...
- Safety ...
- Employee engagement ...
- Customer satisfaction ...
- Diversity ...
- Community involvement ...
- Energy efficiency ...
- Eco-efficiency ...
- Emissions reduction ...
- Sustainable products (e.g. recycling, eco-products) ...
- Sustainability rankings (e.g. DJSI) ...
- CSR ...
- Stakeholders ...
- Reputation ...
- Responsible/sustainable investments ...
- Other: ...
- Equal division (if focus points are equally divided fill in 100 here and 0 in the above focus points - if not, fill in 0 here) ...

**What are the focus points in the performance criteria related to sustainability in your long term variable remuneration?**

*Mark the answer(s) that apply to your company - multiple answers possible*

- Health
- Safety
- Employee engagement
- Customer satisfaction
- Diversity
- Community involvement
- Energy efficiency
- Eco-efficiency
- Emissions reduction
- Sustainable products (e.g. recycling, eco-products)
- Sustainability rankings (e.g. DJSI)
- CSR
- Stakeholders
- Reputation
- Responsible/sustainable investments
- Other (please specify):

**What is the composition of the focus points in the performance criteria related to sustainability in your long term variable remuneration?**

Total should be equal to 100%; e.g. Safety 30%, Energy efficiency 40%, Emissions reduction 30%.

- Health ...
- Safety ...
- Employee engagement ...
- Customer satisfaction ...
- Diversity ...
- Community involvement ...
- Energy efficiency ...
- Eco-efficiency ...
- Emissions reduction ...
- Sustainable products (e.g. recycling, eco-products) ...
- Sustainability rankings (e.g. DJSI) ...
- CSR ...
- Stakeholders ...
- Reputation ...
- Responsible/sustainable investments ...
- Other: ...
- Equal division (if focus points are equally divided fill in 100 here and 0 in the above focus points - if not, fill in 0 here) ...

**How did the selected short-term focus points develop in 2010?**

-3=extreme deterioration, -2=significant deterioration, -1=little deterioration, 0=no change,

1=little improvement, 2=significant improvement, 3=extreme improvement

Examples:

If health is your short-term focus point and health slightly improved in 2010 (1/3 target achievement), fill in 1.

If health is your short-term focus point and health extremely improved in 2010 (complete target (over)achievement), fill in 3.

If health is your short-term focus point and health significantly deteriorated in 2010, fill in -2

	1	2	3	4	5	6	7	No disclosure
Health								
Safety								
Employee engagement								
Customer satisfaction								
Diversity								
Community involvement								
Energy efficiency								
Eco-efficiency								
Energy efficiency								
Eco-efficiency								
Emissions reduction								
Sustainable products (e.g. recycling, eco-products)								
Sustainability rankings (e.g. DJSI)								
CSR								
Stakeholders								
Reputation								
Responsible/sustainable investments								
Other								

**How did the selected long term focus points develop in 2010?**

-3=extreme deterioration, -2=significant deterioration, -1=little deterioration, 0=no change,

1=little improvement, 2=significant improvement, 3=extreme improvement

**Examples:**

If health is your short-term focus point and health slightly improved in 2010 (1/3 target achievement), fill in 1.

If health is your short-term focus point and health extremely improved in 2010 (complete target (over)achievement), fill in 3.

If health is your short-term focus point and health significantly deteriorated in 2010, fill in -2

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>No disclosure</b>
Health								
Safety								
Employee engagement								
Customer satisfaction								
Diversity								
Community involvement								
Energy efficiency								
Eco-efficiency								
Energy efficiency								
Eco-efficiency								
Emissions reduction								
Sustainable products (e.g. recycling, eco-products)								
Sustainability rankings (e.g. DJSI)								
CSR								
Stakeholders								
Reputation								
Responsible/sustainable investments								
Other								

**What is the reason that sustainable targets are not part of your board of executives' remuneration policy?**

Mark the answer(s) that apply to your company - multiple answers possible

- It negatively affects financial results
- Profitability will lead to sustainability
- It is not in line with our business strategy
- We contribute to sustainability in another way
- Other (please specify):
- I prefer not to disclose this information - N.B. at the end of the survey you can make the survey anonymous

**Are you planning to include performance criteria related to sustainability in your board of executives' remuneration policy?**

Mark the answer that applies to your company - only one answer possible

- Yes, starting in 2011
- Yes, starting in 2012
- Yes, after 2013
- Yes, but not yet decided when
- This topic is still under discussion
- No
- I prefer not to disclose this information - N.B. at the end of the survey you can make the survey anonymous

**Please state the industry in which your company operates.**

*Mark the answer that applies to your company - only one answer possible*

- Oil & Gas
- Basic Materials
- Industrials
- Consumer Goods
- Health Care
- Consumer Services
- Telecommunications
- Utilities
- Financials
- Technology
- I prefer not to disclose this information - N.B. at the end of the survey you can make the survey anonymous

**Please state your specific department.**

- Mark the answer that applies to your department - only one answer possible
- Board of executives
- Company secretary
- Human resources
- Investor relations
- Public relations
- Sustainability department
- Other (please specify):

**Please state the country in which your company is situated.**

- Country:
- I prefer not to disclose this information - N.B. at the end of the survey you can make the survey anonymous

**Please state the name of your company.**

- Name:
- I prefer not to disclose this information - N.B. at the end of the survey you can make the survey anonymous

**Please state the amount of FTEs in your company.**

- FTEs:
- I prefer not to disclose this information - N.B. at the end of the survey you can make the survey anonymous

**The questions in this survey may not encompass all information on this topic. Please make any comments if necessary.**

**If you would like to receive the results of this research, please fill in your e-mail address below.**

**If you wish to make the survey anonymous, please tick the box underneath.**

I prefer to make the survey anonymous

Thank you very much for your assistance. Your response to this survey will be of great help.