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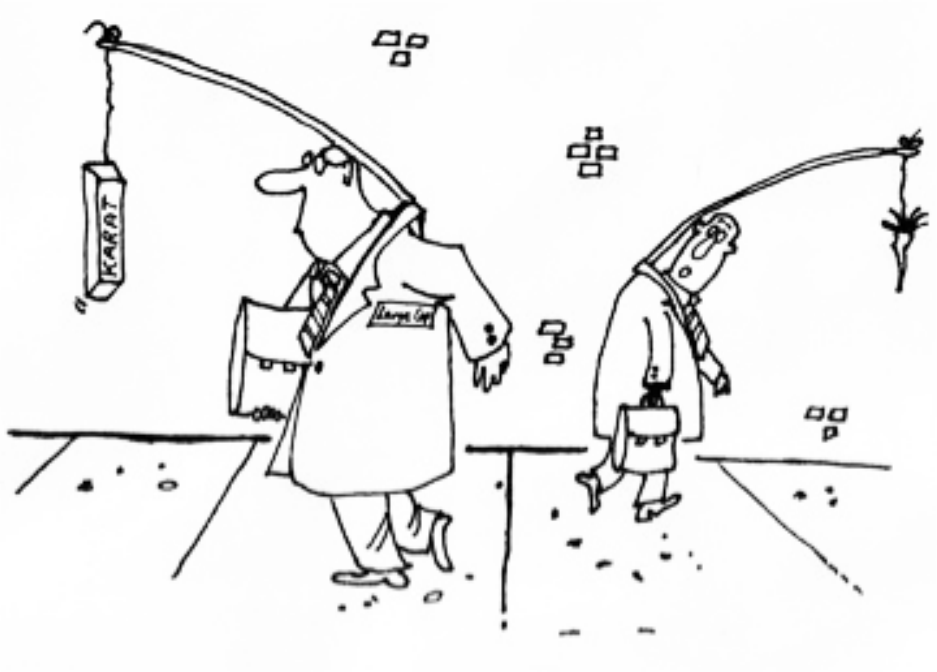
CEO firm specific wealth change and firm performance

- An empirical pay-performance study within public listed Danish companies from 2004-2010



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EXECUTIVE SUMMARY

Taking its starting point in the classical principle-agent theory this study is the first paper to provide an extensive review of the compensation practices in Danish listed companies from 2004-2010. *The goal of this study is to establish if a relationship exists between CEO pay and performance.*

We adopt a more sophisticated notion of CEO compensation by including the ongoing change in wealth that arises from changes in the value of the CEOs portfolio of stocks and options, as well as transactions within this portfolio. CEO wealth change is then linked to shareholder return (a proxy for firm performance) mainly through regression analysis. In the analysis we rely on three different statistics widely used in the existing pay-performance literature, namely: the Jensen & Murphy statistic (sensitivity), equity at stake, and elasticity. In addition to the regression analysis we construct the delta of each CEOs portfolio of stocks and options for each year in order to be able to make inferences about their incentive structure going forward.

The study incorporates extensive information about CEO compensation and the development in stocks and options holdings over the entire period in Danish companies. All the information has been gathered manually from the firms' annual reports and insider notifications, involving approximately 400 hours of data collection. The final sample includes 66 companies.

On the basis of an extensive literature review nine hypotheses about the level and structure of total compensation as well as the pay-performance relationship is constructed. The hypotheses are tested on our results and the main conclusion is that a significant relationship does exist, however small in economic terms. We further find that no relationship exists when only looking at Small Cap companies, and that no relationship exists between CEO pay and relative performance.

The implications are extensive since a lacking pay-performance relationship is likely to lead to agency costs, and thereby loss of shareholder value. As a result we strongly advise Danish listed companies to reevaluate their compensation practices and try to focus on enhancing the pay-performance relationship. This should be done in a way that shifts part of the fixed salary towards variable equity-based compensation in order to make sure that the CEOs are co-investing. Additionally when possible they should be designed to reflect relative performance, as it is a better proxy for the CEOs actual performance, excluding market and industry effects.

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1. INTRODUCTION

1.1. Motivational background

In June 2010 one could read a number of articles across the Danish newspapers with titles such as *CEOs are gilded while employees are fired*[1] (Ritzau, 2010). The point made was that while CEOs across a number of companies were laying off workers due to the financial crisis, they were at the same time receiving large pay increases. One of the specific cases highlighted was Søren Eriksen, CEO of DSB receiving a 900,000 DKK pay increase in the same year he fired 231 employees. The signaling effect of such a move is hard to argue against, and it seems natural that it causes upheaval in the public debate. However the public debate on the general topic of CEO compensation seems often to merely scratch the surface. Newspapers often focus on the spectacular aspects of a story and thereby neglect half the truth about what lies behind the compensation packages of Danish CEOs. As a result we wish to shred further light on the issue by mapping the CEO compensation practices in Danish firms, and focus on how they relate to the overall performances of the firms.

Our motivational background for undertaking this study has been fuelled by two important factors that we think make it both highly relevant and perhaps most importantly - feasible. First, the public debate regarding CEO remuneration has intensified as a result of the financial crisis. However as argued above, much of the debate is filled with noise, and generally there exists a misconception of how to measure CEO compensation. Second, until recently the information quality among Danish firms has not been adequate for it to be possible to map total compensation, but has now reached a sufficient level to undertake this study.

1.1.1. Public debate

The 2008 financial crisis prompted a number of prominent U.S. firms to seek bankruptcy protection. To minimize the systematic effects, the U.S. government became a lender of last resort, taking direct equity stakes in a number of companies. Examples of these include not only a major part of the banking sector but also a number of other companies such as AIG, General Motors, and Chrysler etc. Given that the US government suddenly had become a major shareholder in many of these firms the remuneration to the executives also became substance for intensified publicly debate. Especially, the excessive remuneration levels in the wall-street banks

[1] In Danish *"Chefer forgyldes mens medarbejdere fyres"*

have been subject to much critique (Bebchuk, Cohen and Spamann, 2010). Other instances include the million-dollar retention bonus paid out to the executive group of AIG after the government bailout in September 2008 (Farrel, 2008)

Globalization, specialization through international trade and the large exposure to U.S. mortgage market securities, meant the effects of the crisis were profoundly felt in most European economies; Denmark was no exception.. As the compensation levels in Denmark are much lower than in the US the outcries have been less severe, though much attention is directed towards the increasing levels (Lassen & Ruskov, 2011; Ritzau, 2010). As in the US the initial focus was aimed at the Danish banking sector that was bailed out by the government and as a result executive compensation in the sector was regulated as part of the rescue plans. As the financial crisis spread to other industries the focus of attention followed as well. We began by mentioning the outcry about CEOs firing employees while receiving pay increases at the same time. Though there has also been much focus on a few highly controversial payouts including a 12 million DKK payout to Amagerbankens CEO following its bankruptcy, a four million DKK severance payment to the former CEO of DSB, the 62 Million DKK sign-on bonus paid to Jacob Meldgaard following his switch from D/S Norden to Torm, as well as the CEO remuneration level in Genmab, which has been openly criticized by ATP (Lassen, 2011). Also the one time payments to CEOs in relation to recent IPOs have been subject to debate. Taken all together we find that there are two issues in the current public debate, which deserve to be highlighted in order to reach a more informative level of executive compensation understanding.

First, in the reporting of compensation levels there exists a general negligence of the relevant components. Reports typically only include the base salary, cash bonus, pension, other benefits, value of option grants and value of stock grants (Lassen & Ruskov, 2011; Ritzau, 2010). However, this can be widely misleading as the majority of executives also have large values tied up in the form of shares or options programs outstanding. Both components change in value in response to changes in the firms share price. The changes in value of the outstanding portfolio can have large impact on the overall wealth change of the CEO and therefore it is of vital importance that it is included when reporting on compensation. A failure to do so can potentially lead to severe misreporting, which understates payments in years where share prices increase and vice versa (Jensen & Murphy, 1990; and Hall & Liebmann, 1998). As a result we advocate a

general extension of the topic from focusing simply on pay to look at overall CEO wealth change in relation to the firm.

Secondly, it is important when dealing with CEO compensation not simply to look at the large figures they receive but to compare these figures with the results delivered by the CEOs over the period that the figures relate to. The debate often has an extensive focus on cash-ins, which typically occurs when the CEO exercises a number of options and consequently sells them in the market. There are numerous examples of articles giving the impression that these are single year bonus payments even though they are accumulated earnings over a number of years that are related to the performance of the firm, see for example the article by Nyhedsbureauet Direkt (2010) published in Børsen. Furthermore in relation to the recent IPOs of TDC, Pandora, and Chr. Hansen all previously owned by private equity firms there has been a similar focus on the cash-ins for the CEOs[2] (Lassen & Ruskov, 2011). In the private equity cases however, limited attention has been paid to the initial investments made by the CEOs or the following performance of these firms. Both things should receive meticulous attention before judging these payments.

1.1.2. Information quality

In order to undertake a study of the pay-performance relationship in Denmark where pay is extended to CEO wealth change it will be necessary to map the compensation practices of Danish firms over a period. In order to do so it is a requirement that data is available not only for compensation practices but also for the number of shares and options held by the CEO at any given point in time. Information regarding shareholdings of the CEO and other insiders can be difficult to obtain as there are no laws enforcing firms to provide data on this matter. Nevertheless, several Danish firms have started to provide this information voluntarily.

Despite some resistance from firms and CEOs towards disclosing information about executive compensation on individual levels (Crone, 2006; Ritzau, 2009) the general trend is moving towards greater transparency on the issue where shareholders demand disclosure of information regarding remuneration both with respect to structure and level. In particular it allows them to evaluate the incentives given to the individual members of the executive group. At the same time it also ensures that the boards are not granting overly generous payments to some executives. As

[2] Henrik Poulsen 140 mio (TDC), Lars Frederiksen 180 mio (Chr. Hansen), Mikkel Vending Olesen 169 mio (Pandora)

a result of this movement the overall information quality for executive compensation has reached a level making this study feasible in practice.

1.2. Research question

Based on our motivational background and a preliminary screening of the existing literature within the field, we have narrowed the focus of this paper down to the following overall research question:

> *Is there a relationship between CEO pay and performance in Denmark?*

The above question encapsulates the essence of this study, however it is our intention to extend the analysis beyond simply establishing if there is a relationship or not. Overall we highlight two main areas, which our study will revolve around.

First, from the data we collect, it will be possible to map the trends and practices within compensation in Danish listed companies. More specifically in the first part of our analysis we wish to explore the underlying issue of how the level and structure of compensation has changed over the period 2004-2010.

Having mapped the compensation trends in Denmark the second and main part of the analysis will utilize the data collected in an explorative study, focusing on the perceived link between pay and performance. The paper recognizes the multi-faceted relationship. In addition to investigating the overall strength of the relationship, we aim to focus upon what drives the relationship, if the relationship can be extended to relative performance, and last if any specific firm characteristics are key in determining the strength of the relationship.

These are the two main focus areas of this study, and the paper will be structured accordingly.

1.3. Definitions

In this paper we seek to use definitions and terms from the established literature. However, since these vary even within the field of research, the following section will explicitly describe what is meant by the key terms used in this paper.

1.3.1. CEO wealth change

Inspired by Jensen & Murphy (1990) and Hall & Liebmann (1998) we adopt a broad definition of CEO wealth change, which includes both flow compensation and the change in the value of CEO stocks and options in the firm. The two components of CEO wealth change are explained in detail below.

1.3.2. Flow compensation

Flow compensation encapsulates the annual compensation paid to the CEO by the firm, which consist of a range of different elements. First there is a cash element including: base salary, bonus, pension, and other benefits[3]. In several firms' annual reports this is disclosed as one aggregate figure. Therefore we see no other option than treating it as such, despite it could be interesting to look at the individual elements in isolation.

The second element of flow compensation is share-based compensation. In most cases this consists of options or warrants granted during the year, though it can also take the form of company stocks granted. When included in flow compensation this element is measured at the fair value at the time of the grant. Any change in value of such a grant will be encapsulated in the second part of CEO wealth change. Unless it is explicitly stated in the annual report that shares has been granted free of charge (or at a favorable price), we assume that any increase in the number of shares held by the CEO is due to a market transaction, and therefore not viewed as part of flow compensation, the change in value after the acquisition will however be included in the next element.

1.3.3. Value of portfolio of stocks and options:

At any given time the CEO is likely to hold a number of different options granted during previous years together with a number of actual shares in the company. We have chosen to dub this the CEOs portfolio. The value of this portfolio is often quite significant when compared to annual flow compensation, and it is by nature highly sensitive to share price movements. It is therefore an important factor when looking at the overall wealth change of the CEO in relation to the firm.

[3] Other benefits includes company car, free phone, internet, newspaper etc.

1.3.4. Pay-performance relationship

The term generally used in the literature for this kind of study is a pay-performance study, since the intention is to measure the link between the two. That being said, as just argued we adopt a more general wealth change approach as opposed to simply looking at pay. By the term pay-performance relationship in this study we thus refer to the relationship between a change in CEO wealth and firm performance.

1.4. Demarcations

In order to reach a conclusion in relation to the research question of this paper it has been necessary to make certain limitations. These are described in the following.

1.4.1. Pay-performance sensitivity

The literature within executive remuneration covers a wide range of topics and has historically been of interest to scholars, this combined has lead to an extensive array of academic literature. Recently, the financial crisis has fuelled the agenda leading to new niche type studies dealing with excessive pay, shareholders right to say-on-pay, the impact of regulatory proposals etc. A less recent however still relevant topic that has been subject to ongoing debate for years is the relationship between executive compensation and the performance of firms. This does not mean that we ignore the ongoing debate but instead that we take the pay and performance relation and analyze it in a contemporary light. The reason for this disposition is that the pay and performance relation has not previously been examined thoroughly in Denmark and therefore we consider it important to determine this basic relation before moving on to other more niche type studies.

1.4.2. Geographical scope

In order to be able to deal with the subject in detail it is necessary to limit the study. In terms of geographical reach most previous empirical studies on this subject have focused on US, others focus on Japan, Australia and Europe however none on Denmark. For the same reason Danish firms will be the sole focus of this study.

1.4.3. Public firms

Given the information requirements for this study it is only possible to consider public firms. The research includes all publicly listed Danish firms on the NASDAQ OMX Copenhagen stock exchange. This implies that firms listed on the First North exchange are excluded, as we consider the information quality for these firms too weak. In total this means that the study includes 192

firms. It should be noted that the sample is reduced from this number for various reasons, which are elaborated on in section 5.1.2.

1.4.4. Limited to the CEO

Within the pay-performance literature some studies focus exclusively on the remuneration of CEOs. Others include the CFO, the entire executive board, and some also the group of executive directors. In this study we have chosen to follow the approach by Hall & Liebman (1998), who only include compensation data for the CEO. We do not believe that whether the CEO or the entire executive group is used would alter with the overall conclusions of the study since most firms set their incentive levels for entire executive group. In practice it is unlikely to see a CEO with high incentives while the remaining executives have little incentives.

1.4.5. CEOs total wealth

When considering incentives and compensation for executives some studies have highlighted the importance of taking the wealth of the CEO into account (see for example Elsilä et al, 2009). Keeping compensation level constant, there is an inverse relationship between CEO total wealth level and performance inventiveness. We acknowledge that this could have some effect, however as the total wealth of individuals in Denmark is not publicly available this is not possible to take into consideration.

1.4.6. Severance payments

Most remuneration contracts include a severance payment feature, which comes into play in cases where the CEO is terminated from his position. The size of these varies but typically consists of 1-2 years of annual compensation. In this paper we will not take these into consideration for two reasons. Firstly, the severance payments are included in the contracts to attract the CEO giving him a security feature and not to incentivize him. Secondly, the information regarding the potential severance payments are in many cases insufficient to obtain a complete picture across our dataset.

2. METHODOLOGY

Having explained the motivational background and formally established the research question of the study, this section will elaborate on the methodological approach used in order to answer the research questions. It will commence by explaining the overall research approach, which automatically will function as the structure of this study. Afterwards a section will follow on the literature used, and the approach taken in gathering this literature.

2.1. Research approach

Two fundamental lines of thought exists when it comes to business research methods; the inductive-, and the deductive approach. Inductivism implies that inferences are made about theory in order to explain an observed pattern. In other words the inductive researcher gathers observations about an issue and tries to build theory explaining the observations. It is therefore an approach used in areas with little established knowledge, and is often characterised by qualitative research (Bryman & Bell, 2003). In practice however most studies are based on some established thoughts, which have made some researchers believe that a fully inductive approach is not possible (Hansen, 2008). This leads us to the deductive approach, which on the other hand first builds theory on the basis of either previous research or syllogistic reasoning, and then tests the hypotheses in order to either accept or reject them on the basis of some data. This last process is also referred to as the falsification process of deductive research, and implies that deductive research is most commonly characterized by quantitative research. More specifically Bryman & Bell (2003) defines the process behind the deductive approach by six steps:

Fig 2.1

Due to the vast amount of research on the field in which this study is positioned and the nature of the data we employ, we have chosen a deductive approach in which we follow the above process. The individual steps will be explained in detail below.

2.1.1. Theory

Building on previous research and their models, we will begin by establishing a theoretical framework on which we build our study. This section will commence by positioning our study within the field of agency costs, but most importantly it will help deduce the measures to use in order to quantify the relationship between change in wealth and firm performance. In our search for literature we have highlighted two main texts on which we build our approach (Jensen & Murphy, 1990; Hall & Liebman, 1998). We do however use an extensive amount of other sources to back up our approach and further refine the methods used by the two studies. This will be done as part of our theoretical analysis.

2.1.2. Hypotheses

Following the theoretical analysis we will focus on the empirical results of previous studies. The findings will be used in order to establish hypotheses in relation to the research question. The entire body of literature may not fully apply to Danish corporations. A further challenge may be that few other studies have used data from the same timeframe as we employ. We therefore adjust our hypotheses according to own intuition (based on sound economic reasoning) when necessary.

2.1.3. Data collection

Data used in this study is gathered mainly from the annual reports of listed Danish companies. Specifically it will include figures on executive compensation, which allow us to test our established hypotheses. The period covered is from 2004-2010 making this a longitudinal study. The reasoning behind this choice is that we wish to focus on the development over the period, which includes observations from before, during and after the economic crisis. We do not go further back since only few firms disclose the necessary data on which we build our analysis. As a supplement to the data found in the annual report, we also use stock-exchange announcements on insider trading for each company, in order to map the stock and option transactions undertaken by executives. Thirdly, we withdraw company specific figures from Bloomberg in order to measure firm specific performance over the entire period, as well as other firm characteristics available from the database.

2.1.4. Findings and hypotheses testing

On the basis of the data obtained a thorough analysis is performed. First we look at both average levels and structure in executive compensation and how they have developed over time, in order to map the compensation practices in Denmark. We further perform regression analysis in order to test our hypotheses relating to our main research question. On the basis of our results, we will either confirm or reject our hypotheses. All regressions are performed using SAS software, and we rely mainly on Gujarati & Porter (2003) in relation to the statistical methods used.

2.1.5. Revision of theory

Our results naturally fuel a discussion in which we will either confirm or reject our hypotheses. Since our hypotheses are built on existing literature, a rejection of any of our hypotheses will call for a discussion of our findings vis-á-vis any opposing results. Here it is important to highlight any possible shortcomings or challenges encountered during this study, which may have had an effect on our results. In any case our results will provide us with valuable insights on the relationship between executive compensation and firm performance in Denmark.

2.2. Literature gathering

In line with the deductive approach, the literature review is the foundation of the paper. It both functions as the main source of inspiration to the approach taken as well as the foundation on which the hypotheses are built As stated in the literature review it does not exhaust the entire field of executive compensation, instead attention is paid to the most relevant and respected studies within the field. To ensure the most relevant articles were focused upon we initially scanned a wide variety of academic work. Utilizing online databases (ScienceDirect, Business Source Complete, Google Scholar) we searched for articles relating to: executive remuneration, compensation, pay-performance, agency costs, etc. From these results, the most important texts were taken out and studied in greater detail. Specifically we focus on their references in order to find other relevant studies. In this process a number of extensive literature reviews have been extremely helpful in mapping the field (Murphy, 1999; Core, Guay & Larcker, 2003; Jensen, Murphy & Wruck, 2004; Frydman & Jenter 2010). We find that two studies in particular (Jensen & Murphy, 1990; Hall & Liebman, 1998) resemble the overall approach in which we wish to take, and they therefore have become key in our search criteria as well. Given that most research that is published in respected journals often has been in the making for several years, we extend

our search to include working papers in order to find more recent papers. For this search the database *Social Science Research Network* is used. We search mainly for texts citing any of the text we already highlight as most significant to our study.

This approach has provided us with an extensive overview of the literature, from the early beginning all the way to contemporary studies yet to be formally published. Using this overview, it is possible to sort the literature in terms of relevance and thereby limit the formal literature review to only include the most significant and relevant studies both in terms of theory and empirical results.

3. THEORETICAL ANALYSIS

Executive compensation has in the last decades experienced a great surge in interest. Prior to 1985 only about one or two scientific papers were published on the topic per year. This changed dramatically in the following years, some attributing the *Managerial Compensation and the Managerial Labor Market Conference* that was held at University of Rochester in 1984 as the spark that lit the surge in interest (Hallock & Murphy 1999). The following section will provide a review of the existing literature on the field and justify the position and approach of this study. Due to the vast amount of papers published and the many niches that exist within the field, we will try to focus on the key developments and the most significant papers with relevance to this study. Our approach will be to review the theoretical foundation of principle-agent theory and justify our choice of how to measure the link between CEO wealth change and firm performance.

3.1. Positioning within the literature

3.1.1. Introduction to the agency cost literature

In any cooperation between two parties difficulties are likely to arise due to the misalignment of interests between parties. The relationship between managers and shareholders is no exception, and is generally referred to as the principal-agent problem. In short shareholders delegate the daily responsibility of their company to a professional manager, which they rely on in maximizing their wealth. The manager however may have other interests, which are not completely aligned with shareholders wealth maximizing picture. Or equivalently acting in the interest of shareholders might make him incur costs he is not rewarded for. One example of this could be the firing of employees which may be a very unpleasant act demanded of the manager, though he does not experience any of the gains from the cost savings. Another example is that of management overspending corporate funds in order to subtract private benefits. The classic example is that of a manager buying a corporate jet mostly for his own convenience, and not because the time it saves him adds value to the shareholders. In short the costs that may arise from the separation of ownership and control are referred to as agency costs.

Berle & Means (1932) were amongst the first to explore the issues that arise from separation of ownership and control in companies. They argue that companies are growing in size, and thereby diluting the proportion of management's ownership stake in the company. This means that a

CEO's change in wealth will primarily be attributed to his earnings as manager and not the return on his stock holdings in the company. Berle & Means (1932) inspired a whole field within agency costs research, where scholars try to examine if an increase in the level of management ownership will increase firm value[4], and what the optimal level of managerial ownership should be (Demsetz & Lehn 1985, Morck et al 1988, McConnell & Servaes 1990, Habib & Ljungqvist 2000, Rose 2005).

The concept of agency costs was later formalized by Jensen & Meckling (1976). In their work they see the solution to agency costs as the principal "*providing appropriate incentives for the agent and incurring monitoring costs designed to limit the aberrant activities, of the agent"* (Jensen & Meckling, 1976, p.308). This paper fuelled another approach in examining agency costs and how they can be mitigated, namely by looking at executive compensation as a measure of incentives and the assumed link to firm performance. This field is known in short as the pay-performance literature, which is how we will refer to it onwards. The reasoning behind focusing solely on incentives is that monitoring costs in public listed companies are high, and therefore the most efficient way of aligning management interest with those of shareholders is by motivation and reward through compensation (Jensen, Murphy & Wruck, 2004). It is important to notice that a common way of doing this is by giving the executive equity-based compensation either in the form of options or shares. As already established in our introduction this is the area we wish to explore from a Danish perspective.

The intuition behind this approach can easily be explained by reintroducing the corporate jet example[5]. Say that the shareholders of the firm have agreed to structure the CEOs incentive package in order to motivate him towards increasing shareholder value. As a result the CEO will receive an increase in compensation of one DKK for every 100 DKK he creates in shareholder value. Assume a corporate jet will cost the firm 10 million DKK, and thereby decrease shareholder wealth by that amount. This would imply a personal wealth loss of 100.000 DKK to the CEO, due to the structure of his compensation contract. Whether or not the CEO will go through with this decision thus depends on the value he personally ascribes to having a corporate jet. If it is below 100.000 DKK he will not buy it, though if he ascribes a higher value he will go on and waste shareholder money. From this example it becomes evident how incentive structure

[4] This approach has been dubbed the Berle & Means test in the literature (Habib & Ljungqvist, 2000).
[5] The example has been expired by Jensen & Murphy (1990)

and the existence of a pay-performance relationship can mitigate potential agency costs. However there is opposing views on the efficiency of compensation contracts in obtaining this goal.

3.1.2. Opposing views on compensation

Compensation contracts are in place to mitigate agency costs. The literature however is split between whether this is achieved or not. Bebchuck & Fried (2003) distinguishes between the two opposing views: the *optimal contracting view* and the *managerial power approach*. The optimal contracting view regards compensation as a remedy to mitigate agency costs, and is the approach widely accepted in the pay-performance literature (Core, Guay & Larcker 2003). The general idea behind optimal contracting is that the compensation contracts seen in reality are, if not efficient, then moving towards the efficient level. Of course this is highly simplified since it neglects many of the dynamics that influence the compensation process.

This has led other researchers to adopt a different view on compensation; the managerial power approach. Due to all the factors affecting the compensation process these scholars believe that compensation contracts observed are highly inefficient (Blanchard, Lopezde-Silanes & Shleifer, 1994; Yermack, 1997; Bertrand & MuUainathan, 2001). They ascribe this mainly to the fact that managers very often have substantial power over the compensation process. The level of power can arise from superior information and influence over board members. Adams, Almeida and Ferreira (2005) in their study find a direct relationship between CEO power and level of compensation, providing valid proof for this line of thought. This had led other scholars to extend the analysis to how CEOs in practice manage to extract excessive rents. In a forthcoming paper Morse et al (2010) uses an intuitive model to explain how CEOs uses superior information and lack of transparency in compensation contracts in order to rig their contracts. *Rigging* means that they convince the board to shift the performance based pay to rely on measures where they perform well. Furthermore according to their model rigging will have a negative effect on firm performance. If such a relationship can be proven it will partly offset the pay-performance relationship that we wish to examine. These findings imply that compensation mechanisms become another cause of agency costs and not the solution to the problem as first assumed.

As already implied we see compensation as a remedy to mitigate agency costs, indicating that we adopt the view of optimal contracting. However, despite leaning towards this view we do not argue that contracts observed in reality are fully efficient. On the contrary, our results may

indicate that they are highly inefficient if the link between pay and performance is found to be insignificant. We find it out of scope to try and include the managerial power approach directly in our analysis; however we will keep it in mind when discussing our results.

3.1.3. Compensation as a means of motivating and rewarding

In order to understand the link between pay and performance it is important first to understand the foundations of management compensation. Jensen, Murphy & Wruck (2004) provide an excellent review of the basic elements of compensation:

Management compensation has two main objectives. First, it functions as a means to attract and retain the right people. Second, compensation is a mechanism to incentivize current management by rewarding and motivating good performance. Jensen, Murphy & Wruck (2004) argue that a distinction between rewarding and motivating is not necessary because rewards in one year will fuel motivation in the next year, since management expects to be rewarded for similar efforts. In our study we focus on compensation as a means of rewarding and not attracting. However, it is important to keep in mind that the structure of compensation packages needs to address both goals.

Most compensation packages will consist of a fixed element dominated by a base salary. On top of the base salary comes a number of other benefits that are also fixed, such as pension benefits and perks. This element can however be adjusted year by year, which means that it also functions as a way of rewarding managers for their performance. In practice the fixed element is highly static if measured in real terms and only increases slowly over time to adjust for inflation (Frydman & Jenter, 2010)[6].

The second part of the compensation package is a variable amount based on some sort of performance measure(s). It is very often divided into two parts. The first is a cash bonus scheme, which is a short term component often rewarded on the basis of specific internal accounting targets, subjective measures, or share price performance over the fiscal year. The second element is a long-term incentive consisting of a share-based incentive plan composed of either options/warrants or company stocks (or a mixture of both). The long-term element of the

[6] Based on data from the US from 1992-2008

compensation package is highly sensitive to share price and is supposed to reward managers for their performance.

In conclusion the relationship between pay and performance relies on how dynamically the fixed part of the salary is adjusted to performance, and more importantly how well the second part is structured and how big a fraction it accounts for in total pay. However, as the following section will elucidate, focusing solely on flow compensation will neglect a large fraction of the management total incentives.

3.2. Measuring the link between pay and performance

Knowing the theory underpinning the pay-performance literature, the next section will elaborate on the different measures used in quantifying this link. This is one of the biggest areas of debate within the pay-performance literature, and the discussion relates to both sides of the equation. It is widely debated both how well pay reflects incentives and what the appropriate measure of firm performance is. The following section will incorporate the ongoing debate and provide justification for the measures chosen in this study. We have mainly found inspiration in the studies of Jensen & Murphy (1990) and Hall & Liebman (1998). Our approach will therefore draw on the best of both studies and incorporate it into one. Furthermore we deviate slightly on certain issues, which is mainly due to differences in data available. This will be elaborated on in the relevant sections.

Overall we seek to use two different approaches to measuring the relationship. First we wish to regress a measure of CEO wealth change on a measure of firm performance. This will provide us with valid information on the relationship between the two parameters based on past observations. We will commence by going through the pay side, extend it to performance measures, and in the end combine the two to formalize the regression equations. In addition, we seek to calculate the combined delta for each CEOs portfolio of options and stocks in order to provide information about how well the CEO is incentivized going forward. This will be explained in further details in the section 3.2.4.

3.2.1. Quantifying managerial incentives

3.2.1.1. Extending the view from flow compensation to CEO wealth change

First of all it is important to establish that managers are motivated by a broad range of factors, and that the value ascribed to the different factors differs on the basis of personal preferences. These are factors such as social recognition, personal self-realization, and the value of their human capital etc. Some other studies try to incorporate such factors into their model, one example being Jensen & Murphy (1990) including threat of dismissal. Due to the combination of personal preferences involved and the lack of objective measurement tools we have decided only to focus on monetary incentives as these can be quantified objectively with few assumptions having to be made.

Many scholars have focused on the link between pay and performance (see section 4.2 for an extensive review). Some of the first scholars to explore the area were Murphy (1985) and Coughlan & Schmidt (1985). Both studies find a significant relationship between the two, though a tiny relationship. By focusing solely on flow compensation, these studies leave out an important factor in management incentives: namely the change in value of the manager's portfolio of options and stocks in the firm. These factors may not be part of current flow payments and are highly influenced by the CEO; however they do serve the purpose of motivating the CEO, and should therefore be included. Later studies (Jensen & Murphy, 1990; Hall & Liebman, 1998; Frydman & Jenter 2010) have expanded the view to look at the link between total CEO wealth change and firm performance. According to Hall & Liebman (1998) US managers have significant amounts invested in both options and stocks, meaning that the wealth effect caused by changes in the value of their portfolio is often quite significant when compared to annual flow compensation. By extending our view from looking at only flow compensation to the actual change in CEO wealth we encapsulate the manager's entire monetary incentives, which we find a more appropriate measure for his level of incentives. When examining change in CEO wealth we will therefore both look at the annual flow compensation the CEO receives and change in the value of his stocks and portfolio of options. More specifically we use the denotations given below:

(1) $FC_t = Cash\ compensation_t + V_{options\ granted} + V_{stocks\ granted}$

(2) $W_{CEO,t} = FC_t + V_{options,t} + V_{stocks,t}$

(3) $\Delta V_{Options} = V_{options,t} - V_{options,t\text{-}1} + V_{Profit\ \text{Options ex,t}} - V_{options\ granted,t}$

(4) $\Delta V_{Stocks} = V_{stocks,t} - V_{Stocks,t\text{-}1} - V_{stocks\ granted,t} + \Delta W_{stock\ transactions} + V_{Dividends}$

(5) $\Delta W_{CEO} = FC_t + \Delta V_{Options} + \Delta V_{Stocks}$

(6) $$Ln\left(\Delta W_{CEO,adjusted}\right) = Ln\left(\frac{W_{CEO,t} + V_{profitoptionsex,t} - V_{optionsgranted} + \Delta W_{stocktransactions} - V_{stocks\,granted} + V_{Dividends}}{W_{CEO,t-1}}\right)$$

Where:

FC_t = Flow compensation received in year *t*

$Cash\ compensation_t$ = Base salary, bonus, pension, and other benefits granted in year *t*

$V_{options\ granted}$ = Value of options granted at the time of grant[7]

$V_{stocks\ granted}$ = Value of stocks granted at the time of grant

$V_{options,t}$ = Value of the portfolio options at end of year *t*

$V_{stocks,t}$ =Value of company stocks at the end of year *t*

$V_{Profit\ Options\ ex,t}$ = Profit from options exercised during year *t*

$\Delta W_{stock\ transactions}$ = Net change in wealth from stock transactions during the year

$V_{Dividends}$ = Value of dividends received from his stockholdings

ΔW_{CEO} = Change in CEO wealth related to the firm

When calculating the change in value of the portfolio of options we take the difference in value between options held at end of year *t* and end of year *t*-1, and adjust for any changes in the portfolio that occurred during year *t*. First, profit from options exercised during the year is added. We further subtract the value of any options granted during the year (at the time of grant). This is done to correct for the fact that they are both included in the value of the portfolio and in the flow compensation. The value of the options at time of grant will thus be accounted for only in flow compensation, whereas any change in value from the time of grant to the end of year *t* will be included in the value of the portfolio.

[7] All options are valued using the Black-Scholes formula.

In regards to the change in value of stocks held, we also take the difference between stocks held at year *t* and year *t*-1, and adjust for any changes. First, we subtract the value of any stocks granted during the year (at the time of grant), for the same reasons as just mentioned. Second we adjust for any wealth change resulting from stock transactions during the year. This will be negative if he acquires additional shares in the market and positive if he sells any shares. Last we add any dividends received from his stockholdings in the company. As we are only interested in the change in stock value from year to year we do not have to worry about the purchase price of transactions conducted before 2004.

It all sums up in our measure for total wealth change which in equation five is given in absolute numbers and equation six in percentage term. For statistical reasons both nominal and percentage change are required. This will be further explained in the upcoming sections.

In order to make our approach easily comprehendible to the reader a specific example is provided below. The figures are from the actual dataset and show the compensation to the CEO of Simcorp, Peter Ravn, in 2006 and 2007 respectively, and help illustrate the method very neatly (all numbers are in million DKK except #shares, share prices and dividends per share):

Year	Cash compensation	Value of options granted	Value of shares granted	Value of option portfolio	Value of shares	Profits from options exercised	Δwealth from from stock transactions	Value of dividends
2006	4.1	0.7	0.0	9.1	29.8	3.9	0.3	0.7
2007	4.5	1.0	0.0	2.6	22.2	3.7	-0.4	0.8

Table 3.1

$$FC_{2007} = 4.5 + 1.0 + 0.0 = 5.5\text{m}$$

$$\Delta V_{Options} = 2.6 - 9.1 + 3.7 - 1.0 = -3.8\text{m}$$

$$\Delta V_{Stocks} = 22.2 - 29.8 - 0.4 + 0.8 = -7.1\text{m}$$

$$\Delta W_{CEO} = 5.5 - 3.8 - 7.1 = -5.4\text{m}$$

$$\text{Ln}(\Delta W_{CEO,adjusted}) = \ln\left(\frac{5.5+2.6+22.2+3.7-1.0-0.4+0.8}{4.1+0.7+9.1+29.8}\right) = -0.3$$

3.2.1.2. Methods used by Jensen & Murphy (1990) and Hall & Liebman (1998)

Our overall approach most closely resembles that of Jensen & Murphy (1990), in spite of some deviations. Jensen & Murphy (1990) includes the present value of all future gains arising from an increase in salary and bonus payments, which we have dismissed. Second, they do not include value of options and stocks granted during the year in flow payments, meaning they are instead accounted for within change in value of the portfolio. We consider our approach more accurate since the grant is measured as a part of flow compensation, and any change in value is captured in the value of their portfolio. Third, Jensen & Murphy (1990) includes a measure for valuing the threat of dismissal, which we ignore due to our sole focus on monetary incentives.

Our interpretation of flow compensation is taken from Hall & Liebmann (1998) who also include stock and option grants in what they call direct compensation (comparable to our flow compensation). In terms of wealth change though, they use a different approach, which we assume is due to limitations in the data available to them. They lack exact information on the portfolio of options owned by the executives, meaning they construct proxies for each executive based on the information they do have from the annual reports. For the resulting proxies they calculate the value of their option portfolio for different stock returns. The stock returns are gathered from grouping the firms into 10 groups reflecting the nine decile cut-offs. Average stock return for each decile is then calculated and translated into share prices for each given firm. The change in value of options and stocks can then be compared to previous year's level for the different level of performance. Using our approach we do not make any inferences about how much the value will change for any given change in stock price performance, instead we show the actual change in wealth in relation to the actual change in share price. However by also calculating delta of the CEOs portfolio of options and stocks we obtain a similar measure. This will be discussed in section 3.2.4.

3.2.1.3. Issues arising from using Black-Scholes formula in valuing options

All research within the pay-performance literature that we have encountered uses Black-Scholes in measuring the value of options. In spite of the extensive use, there are pitfalls associated with using this method. First, Black-Scholes calculates the value of an option, was it to be sold to an investor who can hold it as a part of a diversified portfolio, and if needed trade or hedge the option. The option, when granted to an executive, does not include these features. The CEO is

first of all not diversified, since he has his entire compensation package tied up in the firm together with the value of his human Capital, and in addition to that maybe a great deal invested in options and stocks. Furthermore, as an insider, the CEO is restricted in his actions to sell the option or hedge against his exposure. The associated risk averseness results in the CEO attributing a lower value to the option than the value calculated using the Black-Scholes formula (Hall & Murphy, 2002). A second issue is the fact that Black-Scholes is designed to calculate the value of European options that are only exercisable on the date of termination. CEO stock options on the contrary often come in the form of a Bermuda option that vests after a certain period (2-5 years) but do not expire at the same time. This gives managers increased value from the fact that they have more freedom in choosing when to exercise their options. According to Hall & Murphy managers often exercise their options as they vest instead of waiting for expiry date; however Danish research (Bechmann & Hjortshøj, 2009) has shown that for Danish CEOs they tend to wait for 2/3 of the period after vesting to exercise their options.

These two issues however are likely to have a small effect on our results, but in lack of a better measurement tools and since other studies seem to accept this issue, we do not try to rectify this potential source of error. In section 5.1.3.3 when we elaborate on our data we will include the formula used for valuation and an explanation of the specific inputs chosen.

3.2.2. Quantifying performance

3.2.2.1. Shareholder return as a measure of CEO performance

In order to measure performance one must first establish what the overall goal of the manager is. The traditional view on this is that the goal of any executive is to maximize the wealth of his shareholders (Friedman, 1970). Recent years however has seen increased focus on management's obligations to a range of stakeholders and not solely shareholders. Jensen, Murphy & Wruck (2004) incorporates this view into their discussion about management goal. They argue (much in line with Friedman) that managers should pursue *Enlightened Value Maximization.* By this term they mean that managers should pursue long-run shareholder value maximization, which automatically incorporates stakeholder interests, as firm performance is subject to meeting these stakeholder demands. *Enlightened Value Maximization* is not necessary similar to maximizing share prices in the short run. Jensen, Murphy & Wruck (2004) argues that stock markets are not efficient in the strong form (Jensen, 1969), and therefore stock prices include too much noise in

order to reflect the proper value of all future cash flows. Holmström (1979) agrees in terms of share prices being a noisy measure of performance. He suggests that accounting figures should be incorporated into the measure of firm performance.

Taking a pure earnings number like EBITDA[8], EBITA[9], or EBIT[10] gives an indication of the performance of firms, however it does not take investments into account. In theory this means that two CEOs would be regarded as performing at an equal level if their EBIT numbers are similar, despite that one of them is investing heavily in unprofitable investments and thereby negatively affecting his firm. Return on Assets (ROA) is a commonly used measure to determine the performance of an industry that mitigates this problem. However as this study is cross-sectional and asset levels vary across industries with some being asset intensive (shipping, utility etc.) and others asset light (software, consultancy etc.) it is misleading to use this figure to compare performance. Another issue arising from using ratios based on accounting figures is that the earnings number acting as input in the nominator is influenced by accounting choices and fluctuations in the market value of goodwill, which does not give a correct indication of firm performance.

Noise does affect share prices in some instances, however in the long run we believe that stock prices will converge towards the true value of all future cash flows. As the other studies with which we compare our results we have therefore chosen to stick with shareholder return as we find this the best measure of performance. Using Bloomberg we have collected the quarterly returns for each companies in our dataset and matched the four quarters according to the firms accounting year. The return measure deducted from Bloomberg takes into account any form of dividend payments, stock splits, and rights issues.

3.2.2.2. Relative performance measure

The earliest study focusing on relative performance evaluation was conducted by Holmstrom (1979). The research has given the subject some attention over the years as scholars have tried to improve the efficiency of the contracts set between the CEO and firms. The basic idea behind creating an optimal contract in this sense is that it ensures that the CEO is rewarded for the

[8] Earnings before interest, tax, depreciation, and amortization
[9] Earnings before interest, tax and amortization
[10] Earnings before interest and tax

performance of which he has influence and at the same time he is isolated from macroeconomic shocks and fluctuations in share prices, which are beyond his control. This means that the CEOs should be rewarded only for relative performance and not simply for windfall gains, which can be the case if they receive options or stock grants in a bull market.

In this study we intend to measure if Danish CEOs are actually rewarded based on relative performance (see section 6.3.4). In order to observe a relationship between relative performance and CEO compensation it is a requirement that firms structure their incentive programs so that the CEOs are motivated to outperform their peers. In order to achieve this goal the contracts can be structured in several ways for example by indexing the exercise price of options to a peer group of firms or a benchmark index. This will ensure the CEO will only be rewarded if the performance of his firm is higher than the peer group despite any outside shocks affecting the industry. Similarly, he will not benefit from riding a bull market if he does not outperform his peers.

In order to measure firm's relative performance we intend to extend our analysis to regressions that control for the market return, as it is also proposed in Murphy (1999) and used both in Jensen & Murphy (1990) and Hall & Liebman (1998). This will be explicit in the next section when we will denominate our exact regression equations.

3.2.3. Three measures of pay and performance

Having established both sides of our equation it should be straightforward to measure the link between the two. However, in the established literature three main measures have been used all with individual characteristics, namely: sensitivity, equity at stake, and elasticity. We have chosen to include all three measures because of their different attributes and since it will make it easier to compare our results to a broad base of previous findings.

3.2.3.1. Sensitivity

The sensitivity statistic measures the link between monetary changes in CEO wealth for a fixed monetary change in shareholder wealth. This statistic is also known as the Jensen & Murphy statistic since it was introduced in their study from 1990. They measure the change in CEO wealth for a USD 1000 change in shareholder wealth.

In applying the Jensen & Murphy statistic on our data we intend to measure the link between total CEO wealth change and shareholder wealth created in one step. This is opposed to Jensen & Murphy (1990) who measures the link in different steps beginning by only including base salary and bonus only to extend it stepwise to encapsulate total wealth change. The exact regression equations are listed below, first looking at absolute performance and secondly measuring relative performance:

$$(7) \quad \Delta W_{CEO} = \alpha + \beta_1 [MC_{i,t-1} * r_{i,t}] + \varepsilon$$

$$(8) \quad \Delta W_{CEO} = \alpha + \beta_1 [MC_{i,t} (r_{i,t} - r_{m,t})] + \varepsilon$$

Where:

$MC_{i,t}$ = Market Capitalization of firm i at the end of year t

$r_{i,t}$ =Shareholder return on firm i in year t

$r_{m,t}$ = Average return of all listed companies in Denmark in year t

(See section 3.2 for definition of the other terms)

The Jensen & Murphy Statistic has its pros and cons. Baker & Hall (2004) argues that this statistic is good for measuring if the CEO is rightfully incentivized to make decisions regarding activities that have a constant monetary impact regardless of firm size (such as buying a corporate jet). The problem with this measure is that it does not take into account firm size. Meaning that for very large firms the statistic will naturally be low, but the wealth effect on the CEO may still be significant. This effect limits the possibility of comparing results using different firms. However, since it is used so widely in the literature it would be inappropriate to neglect. The shortcoming of the Jensen & Murphy statistic is addressed by the next two measures: equity at stake and elasticity, which we rely more heavily on in our analysis of the pay-performance relationship.

3.2.3.2. Equity at stake

This measure was initially used in Hall & Liebman (1998) and looks at the monetary change in CEO wealth in relation to a one percent change in firm value. As discussed earlier Hall & Liebman (1998) use a different approach in calculating change in value of portfolio of options and stocks, and therefore they do not arrive at their equity at stake measure using regression analysis.

In our study we have the necessary data to measure the actual changes in the value of the CEOs portfolio. This means that we overcome the problem of having to estimate the change in value of a portfolio of options given changes in the stock price. Instead we can perform a regression on the data using the following equations:

$$(9)\quad \Delta W_{CEO} = \alpha + \beta_1 * ri_{,t} + \varepsilon$$

$$(10)\quad \Delta W_{CEO} = \alpha + \beta_1 * ri_{,t} + \beta_2 * r_{m,t} + \varepsilon$$

This statistic, as opposed to the Jensen & Murphy Statistic, does take into account firm size, which is its main strength. It shows that even a small percentage increase in firm value can have a great impact on the absolute wealth of the CEO. Therefore as Baker & Hall (2004) argues, this statistic is more ideal for measuring CEO incentives in regards to actions whose effect become larger as firm size increases, e.g. a corporate restructuring. What it does not take into account is how big a financial impact it has on the CEO, since it does not relate the wealth change to the level of his wealth tied up in the firm. This problem is overcome by the elasticity measure.

3.2.3.3. Elasticity

Elasticity is the last measure and reports the relationship between a percentage change in CEO wealth for a one percent change in firm value. It is one of the first measures employed in the literature (Coughlan & Smith, 1985; Murphy, 1985; Gibbons & Murphy, 1990) and it continues to play a vital role (Hall & Liebman, 1998; Conyon et al 2011). It is closely related to the equity at stake measure in terms that if you know the value of the CEO flow compensation, option portfolio and stockholdings, you can use the elasticity term in order to arrive at the equity at stake measure. Because of its wide usage in the literature it is relevant to include in order to be able to compare our results with those of previous studies. Also it is the most efficient measure to use when comparing the pay-performance relationship between different firms since both sides of the equations is given in relative terms, hence it adjusts for firm size and differences in the levels of CEO compensation.

The regression coefficient will be estimated using the following equations:

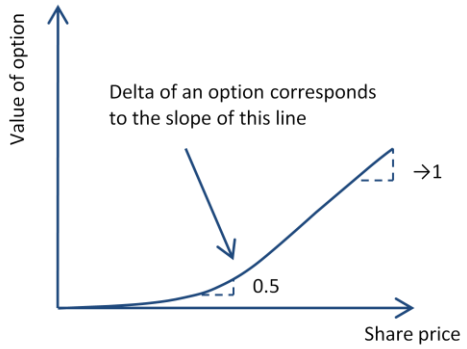
$$(11)\quad \mathrm{Ln}(\Delta W_{CEO,adjusted}) = \alpha + \beta_1 * r_{i,t} + \varepsilon$$

$$(12)\quad \mathrm{Ln}(\Delta W_{CEO,adjusted}) = \alpha + \beta_1 * r_{i,t} + \beta_2 * r_{m,t} + \varepsilon$$

3.2.4. Delta as a measure of incentives

The above approach using regressions in order to estimate the relationship between wealth and performance provides us with a solid picture of how CEOs' wealth has changed in relation to share price in the last of years. Another interesting measure as touched upon previously is the combined delta of the CEOs option portfolio and stockholdings. Delta is a measure of how much the wealth of the CEO changes for a one DKK increase in the company stock. This measure will tell exactly how exposed the CEO is towards movements in the stock price going forward. The figure thus functions as a good snapshot of a CEOs motivation for working towards an increase in the firm's stock price at a given point in time.

Fig 3.1: Illustrative depiction of options delta



Delta is naturally one for each share the CEO holds and thus it depends on the total number of shares he owns. Delta of an option is not constant but will vary depending on how deep in or out of the money the option is (see figure 3.1). An option with a strike price equal to the market price will have a delta close to 0.5 (slightly above depending on the other inputs). This will move towards one as the option moves deeper into the money, and approaches zero the further out of the money it gets. The overall delta is thus only a measure of how the CEOs wealth will change in relation to small movements in the stock price. Computing delta for options is done as part of the valuation of any options since it is one of the inputs in the Black-Scholes model, namely N(d1) (adjusted for dividends). The formula for the combined delta is therefore the following:

$$(13)\quad \Delta_{combined\ portfolio,t} = \#Shares_t + N(d1)_{1,t} * \#Options_{1,t} + N(d1)_{2,t} * \#Options_{2,t} \ \ldots + N(d1)_{n,t} * \#Options_{n,t}$$

Where:

#Shares = Number of shares owned by the CEO at end of year *t*

$N(d1_{n,t}$ = Natural distribution of d1 for options grant *n* at end of year *t*

$\#Options_{n,t}$ = Number of *n* type options held by the CEO at end of year *t*

4. EMPIRICAL ANALYSIS

After finishing the theoretical analysis where we have formalized the exact measurement tools that will be employed later, this section will focus on presenting some of the key empirical findings within the literature of pay and performance. The overall structure will be first to analyze the development of the level and structure of executive flow compensation and the factors influencing it. Secondly, we will examine the relationship between pay and performance, focusing mainly on the articles that look at this relationship from an executive wealth change perspective. As little research has been done with this specific focus outside the US it is necessary to also include some articles focusing on the pay and performance relation using flow compensation as the measure of pay. As part of the analysis we will look at firm characteristics (if any) that drive the difference in pay-performance sensitivity. In both sections we will use the existing findings in order to formalize a number of hypotheses that can be tested on our dataset.

4.1. Level and structure of CEO total flow compensation

4.1.1. Development in the US

Of the studies conducted in the US the majority of them focus on flow payments over a period of approximately 10-15 years. One of the few articles that analyse long run trends in executive compensation is Frydman & Saks 2010. By looking at the flow payments[11] to the three highest paid executives in the US from 1936 up until 2005 they find that annual compensation has experienced a dramatic surge only in the past 30 years. During World War II remuneration in real terms declined sharply, and the decline continued in the late 1940's though at a slower pace. From the 1950s to the Mid 1970s the growth was very modest at 0.8 percent per annum. The rapid growth started in the following period and accelerated sharply in the 1990s with annual growth rates reaching more than 10 percent. These findings are consistent with those of Jensen, Murphy & Wruck, (2004) who find that the level of CEO pay increased dramatically between 1970 and 2000 for firms included in the S&P 500. Average total CEO remuneration increased from approximately 850,000 USD in 1970 to over 14 million USD in 2000, though falling to 9.4 million USD in 2002.[12] A similar trend, though with some differences in aggregate pay level is

[11] The total annual compensation is measured as the sum of the Executives salary, current bonus and payouts from long-term incentive plans (paid in cash or stock) and the Black-Scholes value of the stock option grant. (Not including change of portfolio value)
[12] The numbers are adjusted for inflation using 2002 constant dollars.

found by Frydman & Jenter (2010) who report average CEO flow payment for the S&P 500 of 2.3 million USD in 1992, 6.4 million USD in 2000, and 6.1 million USD in 2008. Core & Guay (2010) and Lord & Saito (2010) find a similar trend.

The driver behind the growth of executive remuneration is to a large extent caused by explosion of stock option grants between 1970 to 2000 (Frydman & Saks, 2007). In 1980 it is reported that 57 percent of the CEOs held some amount of stock options and by 1994 this amount had reached nearly 90 percent (Hall & Liebmann, 1998). The increased focus on overcoming agency problems, a new way of accounting for stock option expenses, and the non-cash outlay are some of reason for this development (Jensen, Murphy & Wruck, 2004). The relative importance of stock options as a form of compensation for firms in the S&P 500 was most important in 2000, where it accounted for 49 percent of total compensation up from 20 percent in 1992. From 2000 to 2008 stock options have lost ground to restricted stock unit grants, which accounted for 32% of total compensation in 2008, up from 8% in 2000. Overall equity compensation[13] has decreased slightly from 56 percent in 2000 to 52 percent in 2008, while base salary only accounts for between 17 and 20 percent of the same period (Frydman & Jenter, 2010).

4.1.2. Differential between the US and the rest of the world

Of the studies that deal with executive remuneration outside of the US many of these highlight the vast differences that exist between countries. Towers Perrin (2002) indicate that the ratio between CEO pay compared to an average hourly worker in larger firms is above 500 in the US, around 25 for the UK, and in the high 10's for France, Italy, and Spain. Abowd & Bognanno (1995) also highlight that wages of the CEO in the US are higher than in 12 other countries (Belgium, Canada, France, Germany, Italy, Japan, The Netherlands, Spain, Sweden, Switzerland, and the UK). In this study however, it is also shown that the higher remuneration level is only limited to the CEO, meaning that there is no statistical significance in differences in lower level executives when conducting the same comparison. Another early study by Kaplan (1994) compares Japanese and US firms and their remuneration polices. In line with previous studies, they find that Japanese executives receive far less cash than their US counterparties. More recently, Conyon et al (2011) describes the difference in pay levels across Europe. Given the similarities between Denmark and Sweden it is worth noticing that Sweden is the country with

[13] Grants of stock options and restricted stock units

the lowest average total flow compensation reported at 1.273 million EUR[14], which is well below the European average of 1.989 million EUR and also far below the US levels. The literature is split on the underlying reason for these differences. Some argue that higher levels of pay are seen in the US because US firms are bigger (Core & Guay, 2010) and (Gabaix & Landier, 2008). However, Conyon et al (2011) show that even when controlling for firm size the total flow compensation is still higher in the US compared to Europe based on 2008 figures. In section 4.1.3.1 we will go further into detail with the relationship between size and total flow compensation.

Reviewing developments in international compensation from 2000 onwards it becomes clear that many of the countries outside the US have experienced a much higher growth in total flow compensation. In Australia for example the total CEO compensation has increased 52 percent over the period from 2000 to 2005 from an initial level of $421,550 Tian & Twite (2010). In the UK the increase in percentage has been even higher as total CEO compensation has increased 60 percent from 828,000 GBP in 2000 to 1,323,000 in 2005 (Ferri and Maber 2011). The pattern seems to be that the extensive growth experienced in the 1990's in the US is occurring outside the US as other countries are "catching up" to the US levels. Murphy (1998) argues that the global competition for managerial talent is intensifying and as a result a convergence towards similar incentive structure and pay levels are occurring.

In Denmark the level of remuneration is considerably lower than the figures found for the US (see Bechmann, 2007) and therefore we expect to see a trend similar to that of other countries outside the US where growth rates have been high.

Hypothesis 1a: We expect to see an increase in level of flow compensation in the period from 2004-2007 before the impact of the financial crisis

Turning to the structure of compensation it is clear that cash as a form of compensation accounts for a much larger fraction of the total flow compensation in almost all other countries compared to the US firms. Especially stock based incentives in the form of option grants are much larger in the US than in other countries (Abowd & Bognanno, 1995; Kaplan, 1997). For example in the period between 2000 and 2005 Tian & Twite (2010) observe that in Australian firms the short-

[14] The analysis excludes all firms with annual revenue below 100 million EUR.

term cash income (salary and bonus) account for 73 percent of total income, with stock based income accounting for at the most 10 percentage points of the remaining 27 percent. The same picture is apparent when considering firms in France, Italy, Spain, and the UK where the base salary comprises a substantial larger fraction of total compensation compared to the US (Towers Perrin, 2003). The general difference in composition of pay between US and non-US countries has been argued to also affect the level of pay. Since equity based pay involves extra uncertainty the risk-adverse CEO's will demand a premium for receiving this type of pay compared to fixed salaries. The pay differential between the US and Europe with respect to the total level of flow compensation is necessary in order to compensate for the higher risk (Hall & Murphy 2002).

Conyon et al (2011) analyses the development of equity based pay in Europe. The results show that for 2008 equity-pay has fallen slightly (see table 4.1). The findings also include data on Sweden, which shows that base salary accounted for 61 percent of total flow compensation making it the second highest fraction for all the European countries. In terms of equity pay it only accounted for one percent of total Swedish payments making it by far the lowest in the group. On average the CEO's in Europe received 50 percent in base salary, 20 percent in bonuses, 19 percent in equity-based pay and the remaining in other forms of pay.

Category	2003	2004	2005	2006	2007	2008
Equity based pay	21.3%	20.0%	20.7%	21.5%	21.1%	19.3%

Source: Conyon et al 2011

Table 4.1

In Denmark limited research on the composition of compensation packages of executives has been conducted. This is partly due to information quality, which has restricted extensive historical studies. Bechmann (2007) highlights the importance of option grants showing that the value of grants in Denmark increased by almost 600% between 2002-2006. In this period option grants accounts for almost all the equity incentives given to the CEO in contrast to other countries where restricted stock units have become popular. For example, in the UK the trend is similar to the US where restricted stock units have become increasingly prevalent over that of stock option grants. However, in contrast to the US total equity pay [15] in the UK has become a more substantial part of the total remuneration package moving from 23 to 29 percent of total compensation in the period between 2000 and 2005 (Ferri & Maber 2011**)**.

[15] Grants of stock options and restricted stock units

Assuming that the structure of executive compensation in Denmark follows a pattern resembling other European countries, which overall have a smaller equity component of pay than their US counterparties we construct the following hypothesis:

Hypothesis 1b: We expect equity-based compensation to increase as a percentage of total flow compensation between 2004 and 2010

4.1.3. Factors effecting flow compensation

4.1.3.1. Size

When determining total flow compensation the literature widely agrees that firm size has a positive influence on the level of compensation. This seems to be the case regardless of whether size is measured as total revenue, market Capitalization, or total assets.

Conyon et al (2011) analyzes firms cross-country by dividing them into four groups based on the size of their revenues in 2008. These results show that for both Europe and the US the structure of compensation changes based on firm size. For larger firms base salary accounts for a smaller fraction of total flow payments compared to smaller firms. Along the same lines equity pay as a percentage of total flow compensation increases with firm size (see table 4.2).

Category	Avg. pay (EURm)	base salary	bonus	equity pay	other
Sales above 4.00 billion EUR	3.78	42%	22%	25%	11%
Sales below 0.35 billion EUR	0.80	59%	15%	16%	10%

Source: Conyon et al 2011

Table 4.2

A similar and widely used way of showing the importance of size in relation to total flow compensation is the elasticity measure, which shows the percentage increase in compensation given a percentage increase in size. Early findings by Zhou (2000) show that values are relatively similar across countries. The reported values from the US, Japan, UK, Canada are 0.282, 0.247, 0.261, and 0.247 respectively. However, it should be noted that the measure for pay is restricted to cash compensation for these results. More recently, Conyon et al (2011) estimates the pay-size elasticity for European firms based on 2008 data. The results are found by taking the elasticity of total flow compensation to company revenues. The average for Europe is 0.348 and the individual countries can be seen in table 4.3.

Pay-size elasticity								
Belgium	France	Germany	Ireland	Italy	Netherlands	Sweden	Switzerland	UK
0.209	0.412	0.333	0.451	0.424	0.243	0.346	0.416	0.398

Source: Conyon et al 2011

Table 4.3

In Denmark a couple of studies have imitated these studies in order to determine whether a similar relationship exists. In contrast to most other findings Eriksson and Lausten (1999) find that the relationship is quite week for a sample of firms in the 1990s. More recently and along the lines of other studies Bechmann (2008) finds a highly significant relationship where size is measured as market value of equity. The regressions are run against both cash compensation (elasticity of 0.20) and cash compensation plus option grants (elasticity of 0.23). Based on these previous findings we construct the following hypothesis:

Hypothesis 1c: Level of flow compensation is significantly related to firm size

4.1.3.2. Other

Overall the empirical results show a mixed picture of other factors influencing total flow compensation. In Denmark Bechmann (2008) finds significant relationships between total flow compensation (using robust p-values) and leverage, option based compensation dummy, large shareholder, owner type (foundation or company were the only significant ones). More recently, the European study by Conyon et al (2011) shows flow compensation is significantly related to size, leverage, stock return, inside ownership, institutional ownership, and average number of members of the board. Although we in this paper do not intend to investigate total flow compensation in detail these earlier findings can act as inspiration when considering factors influencing the sensitivity between pay and performance. See section 4.2.5.3 for further elaboration.

4.1.4. Extending the view to include total CEO wealth change

Another view on measuring the pay to executives is to also include the year-end fair value of outstanding options and shares in total compensation, which for some years will lead to different conclusions about the trend. Unfortunately, the data is limited especially outside the US.

One research paper adopting this approach is Hall & Liebmann (1998) who from the period 1982 to 1994 report a mean wage increase of 270 percent, confirming the trend shown by Jensen,

Murphy & Wruck, (2004) and Frydman & Saks (2007). In Europe Conyon et al (2011) reports recent figures for the value of the CEOs portfolio for 2006 and 2008 (median values). Across countries the value of the CEOs portfolio fell during the financial crisis from 4.1 million EUR in 2006 to 2.4 million EUR in 2008, which corresponds to a median ratio of portfolio value to flow compensation of 4.4 in 2006 and 2.6 in 2008. For Sweden the outstanding value of shares and options were 0.7 million EUR in 2006 and 0.5 million EUR in 2008, corresponding to a ratio of 1.0 in 2006 and 0.7 in 2008, which is significantly lower than for a typical European country. This leads us to the following hypothesis:

Hypothesis 1d: Considering total wealth change instead of flow compensation will yield widely different conclusions about the level of pay

4.2. The relationship between pay and performance

Up until now we have focused on the level and structure of CEO compensation. We will now extend the empirical analysis to focus on the empirical results from authors dealing with the relationship between pay and performance. In order for results to be comparable to what we will find they must adopt a similar approach looking at total wealth change instead of solely focusing on flow payments. Unfortunately this is not a prevailing approach and especially outside of the US it has been hard finding studies looking at wealth change. As a result we find it necessary to begin by examining a few studies that look at the relationship between flow payments and performance. In all of the following sections we will extend our analysis so it only includes scholars looking at the link between wealth change and firm performance.

4.2.1. Flow compensation and firm performance

Just to briefly recap, flow compensation is by nature relatively steady. It consists of a fixed component which is usually set at the beginning of the year and thereby most likely to be related to last year's performance. The bonus part on the contrary is often based on performance during the year and therefore will be the main driver of a potential pay-performance relationship. The bonus however is often measured on the basis of accounting measures, which may not be perfectly correlated to shareholder return, again distorting the picture. In short focusing only on flow compensation is likely to produce very low results (if any significant results at all) for the pay-performance relationship, which is why we advocate a broader approach looking at CEO wealth change. Despite this point being stated by Hall & Liebman (1998) lack of adherence from

scholars focusing on Europe (Duffhues & Kabir, 2008; Edwards et al, 2009; Eriksson & Lausten, 1999; Fernandez, 2008; Conyon et al, 2011) has forced us to include some of their findings in the following section to have some results we can compare our findings with. We thus only highlight results in this section on the areas where we lack previous findings, this is namely in the EU and Denmark.

Along these lines Conyon et al (2011) concludes that in 2008 European CEOs taken collectively are still paid like bureaucrats. The pay-performance relationship has also been investigated in Denmark in an early study by Eriksson & Laustsen (1999), examining the period from 1992-1995. The findings show that there is a weak relation between pay and performance. However, a number of differences exist between this study and our research approach and therefore we consider it unlikely for our findings to resemble these. For example only 10 percent of their sample firms are publicly listed firms, which mean they are forced to use accounting measures (profits and sales) as a proxy for total return to equity holders. When measuring pay to executives they only include annual salary and bonuses, thereby ignoring stock options and stock grants. They justify this by referring to the early findings of Møller & Nielsen (1994) indicating that equity-based compensation is uncommon in Danish firms. They also ignore current stock holdings of the executives and thereby a potential large part of the executives incentive package.

4.2.2. CEO wealth change and firm performance

When extending the view from looking at flow compensation to wealth change you include the change in value of options and stock holdings, which by nature is highly related to shareholder return. It therefore becomes more an analysis of how well the compensation package is structured towards creating a relationship between pay and performance than an analysis if an actual relationship exists at all. Naturally the results reported in this section will be much higher, and they will be comparable with the results we find later in the study.

4.2.2.1. In the US

The first study to take a comprehensive approach in measuring the CEOs incentives is conducted by Jensen & Murphy (1990). Based on the largest publicly traded US firms in the period from 1974 to 1986 they find that CEO wealth changes 3.25 USD for every 1000 USD change in firm value. This relationship is considered very weak and therefore they conclude that the remuneration of US executives resembles that of bureaucrats.

As a response to the paper by Jensen & Murphy (1990), Hall & Liebmann (1998) take the opposing view claiming that CEOs are not paid like bureaucrats. The different conclusion is reached because they extend the different measurement techniques for measuring the sensitivity of the CEOs remuneration. The sample period in this study is from 1982 to 1994 and during this period the proliferation of stock options ties the link between the CEO and firms tighter together. By applying the Jensen & Murphy statistic to their data from 1994 they find that the sensitivity to a 1000 USD appreciation of firm value has increased fourfold from the original reported 3.25 USD[16]. Besides they argue that the statistical measure used by Jensen & Murphy (1990) does not take into account that most of these firms are large and continuously growing, which means that even though the CEO only owns a small fraction of the total firm this fraction can be extremely large in monetary terms. This makes it sufficient to claim that the wealth of the CEO actually is largely dependent on the performance of the firm as the change in fair value of the portfolio of options and stock account for large amount compared to their annual flow payments. The equity at stake measure shows that the sensitivity between pay and performance increases almost tenfold over the years as a one percent change in firm value leads to a CEO wealth increase of 14,000 USD in 1980 compared to 124,000 USD in 1994. On average over the period the return is 43,000 USD. In elasticity terms this corresponds to a 1.17 percent increase in CEO wealth for a one percent increase in firm value in 1980 compared to 3.94 percent in 1994 (Hall & Liebmann, 1998).

In the research on the sensitivity between pay and performance Hall & Liebmann (1998) and Jensen & Murphy (1990) are two of the most influential papers both in terms of results and methods. Especially their methods are widely discussed and replicated on other data sets though mostly in the US. For example Frydman & Jenter (2010) take the Jensen & Murphy statistic and the equity at stake measure from Hall & Liebmann (1998) and apply the measures on data from 1992 to 2005. This makes it possible to compare the development of the pay-performance sensitivity over a larger number of years. According to these results a 1 percent increase in firm value resulted in a wealth increase for the median CEO of 144,000 USD in 1992, this number increases fourfold to 683,000 in 2005[17]. Applying a similar approach to the Jensen & Murphy

[16] The computation is further done by using a size adjusted measure. This is necessary as there is a tendency for the Jensen & Murphy statistic to fall over time as firms grow larger.
[17] The differences in the numbers that overlap with the original period in Hall & Liebmann (1998) can be attributed to them being inflation adjusted to 2000 dollars; however this does not affect the apparent trend.

ownership statistic the results shows a similar but less strong upward trend. In 1992 a median CEO received 3.70 USD for a 1000 USD increase in firm value, by 2005 the gain was just under 6.40 USD (Frydman & Jenter, 2010).

4.2.2.2. Outside the US

The pay-performance relationship has also been investigated outside of the US where results show a mixed picture. Results from the UK have showed that the sensitivity is lower than in the US. In a sample period from 1997-1998 Buck et al (2003) shows that a 1000 GBP increase in firm value only leads to a wealth increase for the CEO of 1.81 GBP. In elasticity terms this corresponds to a 1 percent increase in shareholder return results in a 2.6 percent increase in wealth. Later studies like Ferri & Maber (2011) report that the sensitivity between performance of the firms and the wealth of the CEOs have increased between 2000 and 2005 in the UK.

Over the same period the research on Australian public listed firms by Tian & Twite (2010) show a positive relationship between flow compensation and performance, though surprisingly a negative relationship when considering wealth change versus performance, more specifically for a 1000 AUD change in firm value the CEO wealth declines by 0.14 AUD. One reason for this can be that they include termination payments in their measure of total compensation (wealth change). In elasticity terms they arrive at a positive figure namely a 0.7 percent increase in CEO wealth in response to a 1 percent increase in shareholder return. The results indicate that outside the US there exists a far lower pay-performance correlation, which leads us to formulating the following hypothesis:

Hypothesis 2a: We expect to find a significant relationship between pay and performance, though not as strong as in the US

4.2.3. Main components driving the relationship

After having established that a relationship does exists the natural follow up question that most researchers address is what drives this relationship. Change in the value of the CEOs portfolio is by nature highly correlated to shareholder return and thereby one must assume that a great deal of the link comes from this component. Though as earlier argued flow compensation can also be adjusted over the years to reflect performance, as well as it includes the bonus part which rely on performance measures. When looking at the results from previous research it seems however that

flow compensation drives an insignificant part of the relationship. Jensen & Murphy (1990) finds that flow compensation accounts for 10 percent of the total pay-performance relationship measured using the Jensen & Murphy Statistic[18]. Change in value of options in turn only accounts for five percent, while change in value of stocks drive the bulk of the relationship accounting for 85 percent. This was over a period ending in 1986, meaning that options was not as widespread as today

Hall & Liebman (1998) in turn holds flow compensation constant (they ascribe no importance to the factor arguing that any influence arising from it will be in the rounding errors if compared to stocks and options) and finds that options account for 15 percent of the combined wealth change related to stocks and options, while stocks are still the main factor accounting for 85 percent of the relationship. In a more contemporary study Frydman & Saks (2010) finds that for the period 2000-2005 flow, options and stocks accounts for 6 percent, 61 percent, and 32 percent, respectively. All three studies are from the US and indicate that the importance of options has increased greatly over the years to overtake stocks as the leading component in the pay-performance relationship. In Denmark however the usage of options is not nearly as widespread, which leads us to the following hypothesis:

Hypothesis 2b: We expect that changes in the value of stocks drive the majority of the pay-performance relationship

4.2.4. Relative firm performance

As already argued, optimally pay should be measured against relative performance and not absolute performance. In practice however little attention seems to be focused on trying to construct compensation contracts accordingly. Previous studies have tested for this, yielding mixed results. Jensen & Murphy (1990) controls for both market performance and industry performance in their study though they find no significant relationship between the two. In another study by Gibbons & Murphy (1990) a relationship is actually established however quite small and only in relation to market performance and not when compared to industry performance. Last Hall & Liebman (1998) also test for a potential relationship and they arrive at the same conclusions as Gibbons & Murphy (1990). All three studies are conducted in the US. As the pay-performance relationship has been showed to be stronger in general in the US combined

[18] We exclude all factors from the overall statistic that we have chosen not to focus on in this report

with the weak empirical results our hypothesis is the following:

Hypothesis 2c: We expect to see no relationship between pay and relative performance in Denmark

4.2.5. Factors affecting the relationship

Not many previous papers have dealt with what possible factors affect the strength of the pay-performance relationship within firms. We have found a few though and have chosen to focus on size and industry based on previous findings. Furthermore we include four extra factors that we control for but do not construct hypotheses around since we find existing evidence to be too weak.

4.2.5.1. Size

When comparing the strength of the pay-performance relationship across firms of different size one must be careful. Using the Jensen & Murphy statistic will all other things equal show a declining relationship with increases in firm size. Using equity at stake is not perfect either since we have established that size is an important factor in deciding the level of flow compensation. This mean that for a large firm flow compensation will naturally be higher and so will the equity at stake measure be, assuming similar compensation structure. As we see it elasticity is thus the most optimal measure to use in this connection though unfortunately this is not what other scholars apply.

Schaefer (1998) was the first to examine the strength of sensitivity levels in relation to firm size and found that a strong negative relationship exists. He explains this using the fact that variance of shareholder wealth increases with firm size meaning that a large firm that increases its pay-performance relationship needs to compensate the CEO to take on additional risk compared to a CEO of a smaller company. In a more recent study Baker & Hall (2004) uses a different approach where they regress ln(sensitivity) with respect to ln(size) and also find negative results. As a result we can construct the following hypotheses about incentive strength and firm size:

Hypothesis 2d: Size is expected to have a negative effect on the sensitivity between pay and performance

4.2.5.2. Industry differences

Core & Guay (2001) document an interesting pattern as they show how substantial differences in size of options are related to specific industry types. For median large firms the outstanding option program amounts to a 5.5 percent of total outstanding shares. In high growth industries such as electronics and pharmaceuticals this percentage is between 10-14 percent. In low growth industries such as utility and petroleum firms the figures account for substantial less of total outstanding stocks in the range between 2-3 percent.

In a recent study by Stulz & Fahlenbrach (2011), which focuses on bank executives and the pay-performance relation it is shown that the sensitivity is much larger than in other industries. They show that the average (median) CEO ownership from options and shares increases by 24 USD (10 USD) for every 1000 USD increase in shareholder wealth in 2006. For a 1 percent increase in shareholder value the average (median) gain for the CEO is 1.1 million USD (0.5 million USD). Many banks have established a stock ownership plan for their executives requiring them to hold typically between 3-5 years of annual flow compensation in stock holdings. The median CEO of these banks held 25 times his annual flow pay, largely exceeding the target levels. (Median number might be better as there are some serious outliers, who push the numbers upwards). Other studies have also investigated the differences in pay-performance across industries. The findings confirm the picture that executives in the financial service industry have the highest relation between pay and performance. Lord & Saito (2010) report a ranking of industries for 2007 on US firms, which shows that financial services is highest followed by utilities, merchant, and manufacturing. For a 1000 USD change in firm value the estimated change in CEO wealth is reported in USD as 20.8, 12.7, 11.0, 10.8, and 5.5 respectively. The study shows a trend in the sensitivities across the years 1994-2007. However, we refrain from using these numbers to make inferences about the development, as they do not take the growth in firm size into account. Overall, based on these earlier findings we expect to find:

Hypothesis 2e: Financial firms and high growth industries have the highest pay-performance relationship

4.2.5.3. Other

As argued it has been hard to find significant evidence for other factors, however based upon previous studies we highlight four factors that we think may have explanatory power. We do not establish hypotheses for these factors but simply include them in our model.

An important corporate governance issue is the impact of block holders on pay-performance sensitivity, which Tian & Twite (2010) assess and here it seems that having large shareholders has some effect. Results show that a 1 percent increase in the concentration of block holders results in an increase in the total pay sensitivity by 0.0002.

Using a similar intuition we find that the level of institutional ownership could have a positive impact as well. The reasoning being that a large concentration of professional investors will influence the board of directors and create more professional compensation practices, as well as more leverage against the CEO in a negotiation process.

One of the arguments behind differences between industries is that in risky industries with little transparency it is costly for the principal to monitor the agent, and therefore there is a higher emphasis on providing the right motivation through the usage of pay-performance enhancing measures. As a result we wish to control for firm risk, and as a measure for this we include equity beta in our regressions.

Last we include leverage as it has been found to have a positive effect on the overall level of compensation (Duffhues & Kahir, 2007). Despite the findings not relating leverage to pay-performance we find that leverage is highly interrelated with firm risk, and we therefore wish to see if it has any effect on pay-performance sensitivity.

4.3. Summary

Our empirical analysis has provided us with a thorough understanding of the literature on the field and their previous findings. This knowledge in mind we have constructed four and five hypotheses within each of our two overall focus areas, which we will seek to answer on the basis of our data analysis, which will follow. A complete overview of the hypotheses is provided below:

Focus area	#	Hypotheses
Level and structure of flow compensation	1a	*We expect to see an increase in level of flow compensation in the period from 2004-2007 before the impact of the financial crisis*
	1b	*We expect equity-based compensation to increase as a percentage of total flow compensation between 2004 and 2010*
	1c	*Level of flow compensation is significantly related to firm size*
	1d	*Considering total wealth change instead of flow compensation will yield widely different conclusions about the level of pay*
Pay-performance relationship	2a	*We expect to find a significant relationship between pay and performance, though not as strong as in the US*
	2b	*We expect that changes in the value of stocks drive the majority of the pay-performance relationship*
	2c	*We expect to see no relationship between pay and relative performance in Denmark*
	2d	*Size is expected to have a negative effect on the sensitivity between pay and performance*
	2e	*Financial firms and high growth industries have the highest pay-performance relationship*

Table 4.4

5. DATA COLLECTION AND METHODS

5.1. Approach to data collection

Our study is limited by the data disclosed by the firms in their annual reports and other public announcements. As argued in the introduction, the increase in data available is what has fuelled the motivation for this study, however certain limitations and challenges have been encountered. Currently there is no database aggregating the information, making it necessary manually to collect it all. This is a very time-consuming task and has taken approximately 400 man-hours for this study alone. This section will begin with a short overview of the information quality within listed Danish companies. Thereafter it will go through our overall approach to data collection, any limitations encountered, and assumptions made in order to overcome these.

5.1.1. Information quality

Over the past years there has been an increased focus on the level of disclosure regarding executive remuneration. This has lead to improved information quality as the requirements for public disclosure have forced firms to become more exhaustive in their reporting standards. At the same time these requirements have made this study feasible as we extend the data from annual flow payments to including the value of outstanding options and shares.

The disclosure of total flow payments is a requirement according to *Bekendtgørelse af Årsregnsskabsloven* (2011, §98b). Currently, the requirements only state that total compensation level should be disclosed on executive group level but our data collection process shows that it is becoming increasingly common to disclose total flow compensation on an individual level (see table 5.1).

Since January 2002 the rules governing securities listed on NASDAQ OMX Copenhagen (Nasdaq OMX, 2010) have required that the details and value of option based compensation is disclosed in the annual report. Additionally, it is a requirement that these values are disclosed on a group level for all executives. The IFRS 2 from January 2005 pushed the trend further by requiring the disclosure of the option inputs used for the valuation (Bechmann & Hjortshøj, 2009).

Having information on the shareholdings of the executives is a requirement for our study as it is a necessary input for calculating the change in wealth. During the period under examination firms have increasingly been disclosing these figures. This is typically done on the group executive level while more firms have started to disclose it individually. Though, from a regulatory point of view firms are not obliged to disclose these values.

Category	2004	2005	2006	2007	2008	2009	2010
Total flow compensation	66	66	66	66	66	66	66
Group	*32*	*29*	*28*	*25*	*25*	*24*	*21*
Individual	*34*	*37*	*38*	*41*	*41*	*42*	*45*
Total Options	38	38	38	38	38	38	38
Group	*15*	*15*	*14*	*14*	*14*	*14*	*14*
Individual	*23*	*23*	*24*	*24*	*24*	*24*	*24*

Table 5.1

Despite the improvement of information quality Denmark is still far away from total transparency. The Danish code of conduct on corporate governance developed by the Nørby Committee, which follows the OECD principles of Corporate Governance, has several times emphasized the need for more disclosure about executive remuneration. The changes that have been made to the initial guidelines presented in 2001 have three times involved emphasizing the need for this. Based on the publicly available annual reports from 2009 the committee concludes that *"It is prevalent that information regarding remuneration generally speaking is insufficient"*[19] (Committee on corporate governance in Denmark, 2011). This is a similar conclusion to the one reached in Bechmann (2005) indicating that the development in information quality has not been sufficient enough. This is also somewhat apparent from the data collected for this study as it seems there has been almost zero improvement in level of option disclosure over the period. Overall, and in comparison to other countries, information quality regarding incentive structure is still insufficient. For instance in the UK share ownership as an example is available for all firms in contrast to the 34% we find in this study[20].

[19] Translated from original: *Det er et gennemgående træk, at oplysninger om anbefalingerne om vederlagsforhold generelt set er mangelfulde.*

[20] 66/192 = 34%

5.1.2. Data sample

Our initial population consists of listed Danish companies. Our final sample however is limited to include 66 companies[21], with a split between different industries, though dominated by industrial and financial companies. In our selection process we have strived towards arriving at an unbiased dataset. Therefore we establish a rigid exclusion process in which we arrive at our final data sample. The different steps are illustrated in figure 5.1 below.

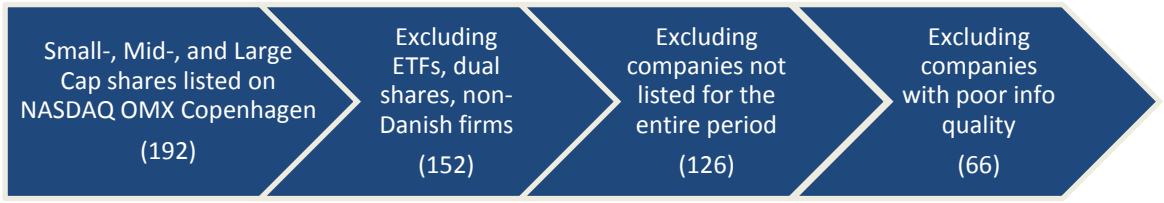
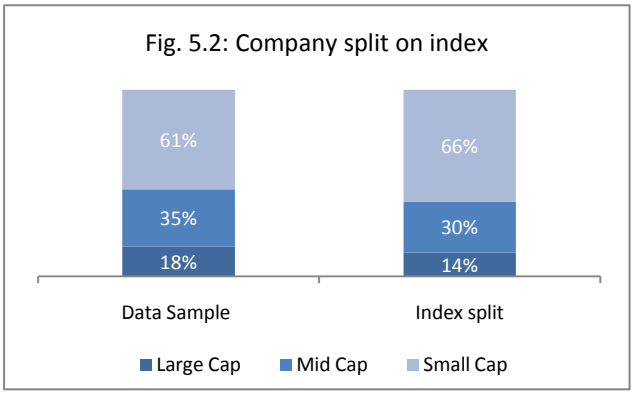


Figure 5.1

First of all we choose our sampling frame as the entire OMX Cap index consisting of 192 Danish listed companies. By using this index we include the great majority of listed companies, and thereby avoid under-coverage as described by Agresti & Frankling (2007). Secondly, we have strived towards making the selection process as objective as possible. This is done by setting up three predetermined criteria that companies need to fulfill in order to be included. We begin by excluding exchange traded funds, dual shares, and non-Danish firms. Second, in order to be able to measure stock performance throughout the period we exclude all companies that are not trading on the stock exchange for the entire period from 2004-2010. Lastly, a range of companies have been excluded due to inferior information quality. In most cases companies have been excluded if the CEOs' share ownership is neither disclosed in the annual report or in insider notification. Using this overall approach we feel that we take all possible actions towards ensuring an unbiased data sample since most companies that do provide us with the necessary information have been included. Comparing the split of companies in our data sample with the overall division between Small-, Mid-, and Large Cap confirms our efforts in that the two are very similar, as is evident from the figure 5.2. If divided on industry it shows a somewhat similar picture. The only significant deviation is within financial shares that are underrepresented in our

[21] An individual datasheet is constructed for each company, see appendix 10.8 for an example

dataset; however this can be directly explained by the fact that we exclude mutual funds that are part of the financial category.



The final dataset is limited even further since we have had to exclude the first annual observation when a firm changes CEO. If not done, calculating the change in value of stocks and options would simply not make sense.

5.1.3. Estimations and assumptions

Despite having excluded a number of companies due to inferior information quality, it has still been necessary to make certain estimations and assumptions about the data gathered from our sample. However we have made sure that these are only minor issues and have not had the significance to change our conclusions. If a larger issue had arisen the company would be excluded from the dataset in order to avoid any estimation errors.

5.1.3.1. Companies with staggered fiscal year

It has been necessary to account for companies with fiscal years not ending the 31st of December. We have chosen to follow the accounting year of their annual report, and use the report 2003-2004 for the base year. Shareholder return as a result is adjusted to reflect the accounting year. More specifically we have drawn shareholder return on a quarter basis making it possible to match return to accounting figures. This approach does mean that we are comparing observations from different companies assuming that they reflect the same time period, when in fact they can be staggered by up to nine months. This may have an effect when we consider result from single years. However since most information on compensation is only provided on an annual basis we see this as the only feasible approach.

5.1.3.2. Dividing group figures down to individual level

An overall issue throughout the dataset has been that companies do not need to disclose any information on a personal level for the CEO but can disclose a single figure for the entire executive group. It has thus been necessary to break this figure down on a personal level. In doing so we have used the general rule that CEOs receive 50% more than other members of the executive group. This is a widely accepted rule of thumb (Bechmann & Raaballe, 2008), and has shown to be consistent with the observations in our sample where it has been disclosed on CEO level. In most cases however individual level is disclosed in some if not all years, and it has therefore been possible to make or more educated estimation of the level based on other years. In total we have used the estimation rule in 14 cases out of 61 companies without any other indication of individual level. When necessary the rule has been used both in cash compensation and share of options granted.

Another issue arising from companies disclosing one overall compensation figure for the executive group is that of severance payments to leaving CEOs also being included. As mentioned earlier, we do not include severance payment in our analysis, and have therefore also tried to counter any such payments. This has been possible since it is often mentioned in the annual report if a compensation figure includes severance payment, and it can then be adjusted to reflect the levels in the year before and after the severance payment.

5.1.3.3. Valuation of stock options

All options grants and option portfolio values have been calculated using the Black-Scholes formula. In applying the formula we make sure to adjust for dividends over the life of the option. The specific formula is given below:

$$d1 = \frac{Ln\left(\frac{S}{S_{ex}}\right) + \left(r_f - DIV_{\%} + \frac{\sigma^2}{2}\right) * T}{\sigma * \sqrt{T}}$$

$$d2 = d1 - \left(\sigma * \sqrt{T}\right)$$

$$V_{Call} = e^{\left((0-DIV_{\%}) * N(d2)\right)} * S * N(d1) - S_{ex} * e^{\left((0-r_f) * T\right)} * N(d2)$$

Where:

S = Spot price (either at grant date or year-end)

S_{ex} =Exercise price

r_f = Risk free rate

$Div_{\%}$ =Dividend yield in percent

σ = Volatility in percent

T = Time to maturity in years

In order to get at the necessary inputs for the formula and ensure they are comparable across companies a number of adjustments have had to be made. Bechmann & Hjortshøj (2009) concludes in a previous study that the Danish firms are not very good at disclosing the required information in order to calculate options value. We find that companies in general do disclose the necessary information needed in order to calculate the value of the options, though the way in which information is presented and the level of detail varies greatly between companies. A common framework with rules and guidelines of how and what to disclose would be of great ease for a study like this. Furthermore in line with IFRS regulations companies when calculating the value of options granted split the expense over the period of the lifetime of the option. This is highly misleading in terms of the inputs required to complete this study, and is the main reason why we decide to perform our own valuation of the options, both at the time of grant and at year-end for all companies. Inputs have been gathered from a combination of sources though relying most heavily on the information disclosed in the annual report. A full overview and explanation of the inputs is given below:

Input	Comment
Risk free interest rate	Interest rate on a Danish 10 year government bond (Nationalbanken, 2010)
Volatility	Disclosed in the annual report. Most often it is the volatility for the last 12 months
Strike price	Disclosed in the annual report. In some cases the strike price is adjusted upward by a fixed percentage each year and in others it is adjusted downward by the dividend paid. In the latter case we have set expected dividend payment as zero, since it is incorporated in the adjusted strike price. In the case of stock splits or rights issues, strike price and number of shares granted has been adjusted in the annual report and thereby also in our dataset
Spot price	Share price at the given day, either at year-end or at date of grant for our calculation of option grant value. If date of grant is not disclosed in annual report or in stock exchange announcements, it has been assumed to be at the publication date of the annual report from the previous fiscal year, which in most cases occur in end March/beginning of April
Time to maturity	The full life of an option grant is disclosed in the annual report. The companies often adjust the time to maturity they use in their calculations to reflect that options are sometimes exercised early. Though in order to ensure objectivity and alignment across the dataset, we have chosen to apply the full time to maturity in our calculation of options value. Often the exact date of vesting and maturity is given, which have made us assume that the options was also granted at that date, assuming the lifetime is a number of full years
Expected dividend payment	Average dividend payments over the life of the option

Table 5.2

Another issue in relation to options is to find the stock price at the time when options are exercised. In some cases either the actual proceeds from options exercised or just the stock price at the exercise date is disclosed in the annual report, though most of the time it has been necessary to go through all insider notifications during the year and find the exact date of exercise. Only in two annual cases (out of 427 annual observations) has it been necessary to use the average of the stock price at the beginning and the end of the year, and in neither case was the impact on proceeds from options exercised material when compared to the total compensation figure.

5.1.3.4. Issues regarding determination of CEO stockholdings

In terms of CEO stockholdings the main issue has been to determine the absolute level in any given year. Companies are only obliged to disclose information about insider trading and not the level of insider ownership meaning that in some cases only one figure is disclosed for both the aggregate holdings of both Board of Directors and the Executive group, making it extremely hard to estimate the holdings of the CEO. In order to overcome this issue, again we turn to insider notifications, where more detailed information on the level of Executive group holdings or CEO holdings is disclosed. If the figure is given for a single year, it has often been possible to perform reverse calculations relying on insider notifications on the CEO's transactions over the years. In other cases when stockholdings has only been disclosed on executive group level we have used the rule of thumb that the CEO should have 50% more than other members of the executive group. In each case though we have made an overall judgment as to the information quality and if we felt that it could not be estimated within reason the company has been excluded from our dataset.

The second issue was again to find the share price that the CEO has either sold or bought shares at over the years. This has been also been found in insider notifications over the year. If the CEO performs a number of transactions over the year, we have calculated the weighted average share price and multiplied it by the net change in his stockholdings. Only in 10 annual cases (out of 427 annual observations) has it been necessary to use the average of the stock price at the beginning and the end of the year.

Summing up, it is our opinion that all possible remedies have been taken in the pursuit of maintaining a reliable and unbiased dataset. There is always a trade-off between the size of one's dataset and the number of assumptions needed to be made. We have chosen to rely on a minimum of assumptions, which have limited our dataset in scope, though it is our opinion that the final sample of 66 companies out of 192 is still very reasonable, and do not jeopardize the robustness of our conclusions.

5.2. Statistical considerations

The collected data composes a panel dataset with annual observations for the period 2004 to 2010 from 66 companies resulting in a total of 462 observations. Initially our dataset is a balanced

panel as there is the same amount of observation for each company, though since we remove some outliers in the process, as well as observations where the company changes CEO the dataset used in the regressions is slightly unbalanced. Panel data is in many ways superior to using either time series or a cross section of observations, since it combines the two and gives *"more informative data, more variability, less collinearity among variables, more degrees of freedom, and more efficiency"*, and is better suited for studying the dynamics of change (Gujarati, 2003, p.637). Panel data however also impose certain challenges that need to be addressed. This section will provide an overview of the statistical considerations that lie behind our regression results.

5.2.1. Dealing with panel data

In dealing with panel data a number of different approaches exist. We have chosen the pooled regression model as our starting point where all observations are stacked in one model that estimates the OLS regression. This is the simplest approach possible and assumes that the intercept and slope of all companies are the same and does not change over time. This may not be the case since there is a great deal of variety in our dataset. As a result our analysis is extended to account for these factors by using a Fixed Effect Model. In the model we introduce a dummy for each company resulting in individual intercepts for all firms. As a result any structural differences relating to level will be accounted for and the slope figure will be more reliable if it turns out that differences between firms are large as we expect. One of the issues that can arise when using a Fixed Effect Model is the problem of consuming too many degrees of freedom, which is not a concern in our case as the dataset is rather large. By performing both regressions we can go forward using the model that turns out best to fit our dataset measured using the significance level of the estimators, R^2 of the model.

5.2.2. The error term

Using OLS it is always assumed that the error term is normally distributed with a constant variance. In our case however the error term between the different companies may be of very different nature leading to potential problems of heteroscedasticity and autocorrelation. The reason we might observe both these issues stems from the fact that we have a pooled dataset i.e. a mix between cross-sectional and time-series.

Heteroscedasticity is one of the most common problems using cross sectional data. Given that we have 66 firms and only 6 years the issues arising from heteroscedastic distribution of the error

terms is likely to be more severe than those arising from autocorrelation (la Cour, 2011). In order to overcome this we begin by removing extreme outliers from our regressions. Secondly, having observed the scatter plot of our initial regression where the residuals show a pattern of increasing residuals for extreme x values, we have decided to use robust residuals (heteroscedasticity consistent) consistently in order to make sure our conclusions are valid.

The second issue regarding the error terms is that of autocorrelation, which is often a problem incurred when dealing with time-series data. The problem of ignoring autocorrelation is that the variance is likely to be underestimated. This can potentially lead to an overestimation of R^2 and the usual t and F-tests of significance can become invalid (Gujarati, 2003). The problem when dealing with a panel dataset is that the normal tests for detection of autocorrelation becomes invalid (la Cour, 2011). Together with the fact that we have only six years in our dataset the problem of autocorrelation is likely to be a minor issue and therefore we find it acceptable not to take any further steps.

5.2.3. Multicollinearity

Another common problem from using regression models is mulitcollinearity between the many variables that may be introduced into the model. With mulitcollinearity present in the model precise estimation of one or more parameter can become difficult. Multicollinearity however has been argued in the literature as a problem of small sample size and not necessarily a statistical problem (Gujarati 2003). When we do our initial regressions we only have one explanatory variable, though in some of our later regressions it may become a problem. Therefore we make sure to react on the common warning signs of insignificant parameter values but a high R^2. If this scenario is encountered we perform auxiliary regressions between the variables to test for mulitcollinearity.

5.2.4. Model specification bias

A more general mistake in econometrics modeling is that of model specification bias. This can incur in two broad forms: either from a misspecification of the functional form, or through the omission of explanatory variables (or inclusion of unnecessary variables). In practice it is not possible to know if all explanatory variables have been taken into consideration when specifying the model, or if the right form of model has been used, though certain precautious measures can be followed which we have adhered to.

We have conducted a thorough literature review in which we have examined the statistical methods of previous researchers on the area. From their general accepted findings we have tried to construct similar models in order to make our results comparable, which is one of the most important parameters highlighted by Hendry & Richard (1983). In terms of functional form we are restricted in the way that by changing functional form our results will not be comparable to previous studies. However, we do estimate three different measures for reporting the sensitivity, which are: changes in dollar for dollar, dollar for percent (equity at stake), and percent for percent (elasticity). By doing so we also automatically test which functional form fits our data best, and thereby which model fits the dataset best. Additionally, in line with previous research we include a measure for market performance in order to measure if there exists a relationship between change in wealth and relative performance. This is of course determined by the features of the CEOs compensation contract. In our data collection we find mixed results, intuition for such a relationship should exists, however it is still tested.

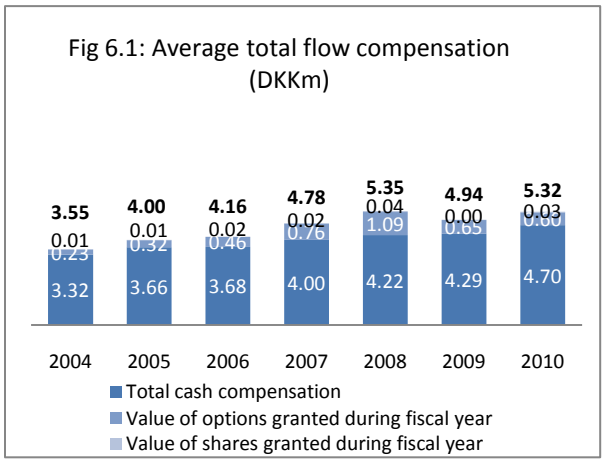
In short, this study is build around a number of well respected research papers, and uses similar approaches in respect to econometric modeling. This helps us compare our results to theirs and by the same time maintain a simple intuitive relationship that can easily be comprehended when concluding on our results.

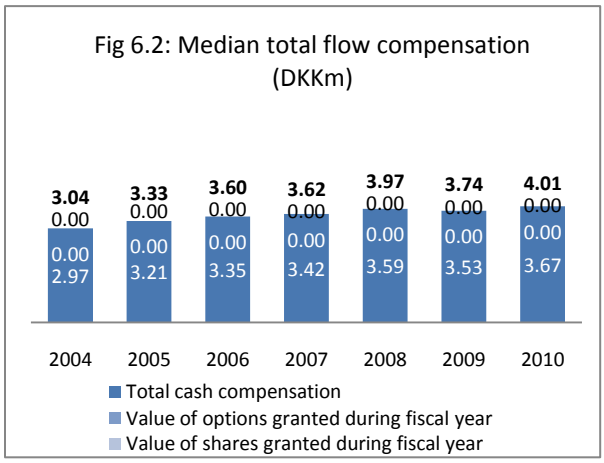
6. RESULTS

In this section we present our results based on the collected data. It will be structured in accordance to our research question where we begin by analyzing the level and structural development of total flow compensation and total CEO wealth change[22]. Thereafter we move on to the performed regressions in order to establish if a relationship exists between pay and performance. We then seek to extend the pay-performance analysis by providing deeper insights into the nature of this relationship.

6.1. Development in flow compensation

Total CEO flow compensation has increased steadily from 2004 to 2008 as shown in figures 6.1 and 6.2[23]. The increase is evident both measured as average and median indicating that the trend reflects the general development and not a few outlying observations. From 2008-2009 during the financial crisis the average CEO experienced a slight pay reduction from 5.4 million DKK to 4.9 million DKK. Overall the development between 2004 and 2010 corresponds to a compound annual growth rate (CAGR) of 7.0 percent based on average values and 4.8 percent based on median values. In comparison the average Danish worker experienced a CAGR of 3.3 percent between 2004 and 2009 (Statistics Denmark, 2011).





[22] All numbers in this and following sections are not inflation adjusted

[23] The following observations have been excluded as there are considered outliers. Novozymes 2007 stock grant, Thrane & Thrane 2008 option grant, and Lars Rebien stock grants 2007-2010.

The trend in Denmark has developed similar to our expectation in hypothesis 1a as we find that the level of CEO compensation in Denmark follows an upward trend in the period 2004-2007. This development is similar to those reported in other European countries where the CEO compensation growth levels have been high as they are "catching up" to those of the US. Empirical results for showing the trend in pay after 2007 are limited.

6.1.1. Cash

The average cash component of pay increased from 3.3 million in 2004 to 4.7 million in 2010 corresponding to a CAGR of 6.0 percent. This makes the cash component accountable for 88 percent of total flow compensation. This is much above the EU average which is only 68% (Hay Group, 2010). If compared to our Scandinavian peers, cash compose 86% and 82% of total compensation in Sweden and Norway respectively (Hay Group, 2010). Cash compensation in Denmark accounted for the majority of the increase experienced in total flow compensation. Specifically, 78% of the increase in total CEO flow compensation between 2004 and 2010 came from cash compensation, as opposed to option and stock grants accounting for 21% and 1% respectively.

6.1.2. Option and stock grants

6.1.2.1. All firms

In 2004 option grants for all firms on average accounted for 6.4 percent of the total flow remuneration to the CEO, by 2010 this fraction had increased to 11.0 percent. The largest option grants were awarded in 2008, where they accounted for 20.0 percent of the total flow compensation. The median value of option grants was zero for the whole period indicating that fewer than half of the firms in the sample granted options (see figure 6.1).

In the period 2004 to 2006 stock grants for all firms on average accounted for an insignificant amount of total flow compensation. By 2010 the level has increased however they still only account for 0.5 percent of average total flow payments. The median value of stock grants was zero for the whole period indicating that fewer than half of the firms in the sample granted stocks (see figure 6.2).

Overall, we can confirm hypothesis 1b as equity compensation clearly has increased both in absolute terms but also relative to total flow compensation with the majority of the value deriving from higher values of option grants.

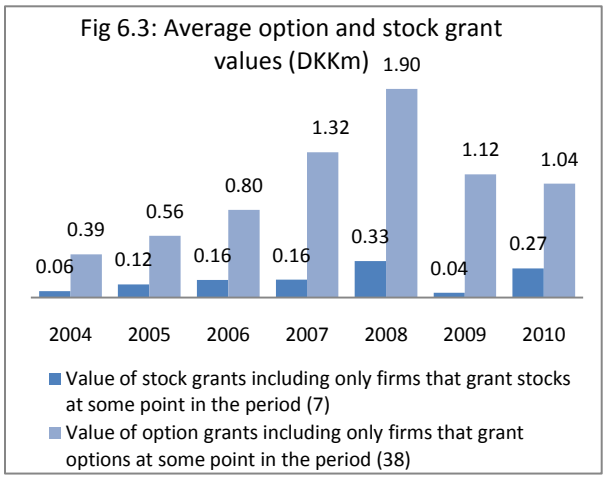
6.1.2.2. Excluding firms with no grants

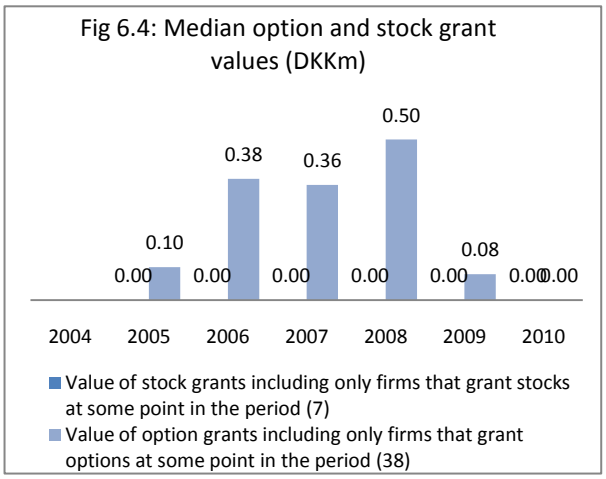
As many of the firms do not grant options or stocks it is informative to exclude these firms in order to allow a more detailed examination of the equity grants that are actually given. Figure 6.3 and figure 6.4 show that average and median value of stock and option grants, including only those firms that use the specific component in their incentive programs. This implies that the option grants data includes 38 firms and the stock grants data includes seven firms.

For the firms that choose to reward their CEO with options it is clear that the size of these grants has increased drastically over the period reaching its peak in 2008 where the average option grant was 1.9 million DKK. The median value of grants over the same period shows a similar trend at a smaller level suggesting that the high value of average grants is driven by a few firms. Examples of CEO's with high option grant values in 2008 compared to their previous levels values are Steen Risgaard – Novozymes (12.3 million DKK), Carsten Mortensen – Norden (12.7 million DKK), and Jørgen Buhl Rasmussen – Carlsberg (5.6 million DKK). Typically, the number of options granted to the CEO is based upon the firms performance in previous years, which means the high level observed in 2008 reflects the performance accomplished in earlier years. When interpreting the median values it is important to keep in mind that only 14 firms out of the 38 are consistent in granting options every year over the period. Often options are granted more sporadically meaning that despite being included in the sample, the value of option grants may be zero for several years over the period. This naturally drives down the median values of the size of option grants.

Stock grants are only used to a very small degree among Danish listed firms and for those who do you use them the grants are very small. This can partly be explained by the fact that some firms use them as an additional incentive component combined with option grants. The development of stock grants mirrors the trend of option grants over the period reaching its peak in 2008 where the average value was 0.33 million DKK. Novo Nordisk and Novozymes are the only firms that have introduced stock grants on a large scale. As such Lars Rebien (Novo Nordisk) received stock grants worth 8.8 million DKK in 2007, 6.3 million DKK in 2008, 8.6 million DKK in 2009, 9.3

million DKK in 2010 and Steen Risgaard (Novozymes) received stocks worth 21.4 million DKK in 2007.[24]





According to Conyon et al (2011) equity pay[25] in Europe on average accounts for between 19 and 22 percent of total flow compensation from 2003-2008. Compared to the results we obtain the other European countries have had a more stabile development than the rapid growth Danish firms have experienced. In 2004 we report an equity based fraction of total flow compensation of 6.7 percent, with the majority coming from option grants. This is somewhat lower than the European average. By 2008 the Danish firms were at par with the other European countries but unfortunately we do not have any data available after 2008 to see if the fall seen in Denmark is a general trend across Europe.

Our data on option grants overlaps with earlier results from Denmark in the years 2004-2006, see Bechmann (2007, Table 8a and 8b). The median and average values we report are significantly below those from earlier findings, which can be attributed partly to a number of small differences in assumptions and how the data is treated. Though we find that the main driver of the variation in results arise from differences in the datasets. Bechmann (2007) includes all listed companies in his study meaning that the dataset is changing over time. This makes it a better sample for concluding on how the actual situation looks at year end; however it becomes invalid when you wish to compare the development over time which is one of our main intentions of this report. The difference in samples though gives rise to some interesting findings. We have compared the

[24] Both Novozymes and Novo Nordisk have been excluded from figure 6.3 and 6.4 as there are considered outliers.
[25] Stock and option grants

firms in our sample with the firms from the previous findings and found that in many cases there exists systematic higher level of stock grants in the firms we have excluded[26]. In particular we highlight the following issues indicating a number of interesting trends:

Firms with IPO in the period 2004-2010 (and thereby excluded from our data) have larger option grants than the average firms. Examples hereof are Topotarget, Sparekassen Himmerland, and Tryg. At the same time some of the firms that have been delisted during the period and thereby excluded from our data have used option remuneration excessively. Examples of this include ISS, Keops, Pharmexa, and Maconomy. Firms that do not disclose stock ownership (and thereby excluded from our data) seem to have very large option programs. Examples of this include Genmab, Top Danmark, and Torm. Last, some financial institutions that have faced bankruptcy (excluded from our data) used extensive option programs as for example Ebh Bank, Roskilde Bank, and Lokalbanken. So in conclusion our results may neglect some features of the usage of options in Denmark over the period. However, as explained, we have excluded these companies in order to establish the underlying trend.

In comparison, empirical studies on European countries show that options are the most prevalent form of equity compensation. However, in the US this has changed during the last decade. Restricted stock units still account for a large part of the compensation package. Conyon et al 2011 points out that the increase in restricted stock units came after a number of accounting scandals in the US. The only other country where we have encountered with a similar trend is the UK (Ferri & Maber 2011**)**. Denmark does not follow the trend of these two countries as restricted stock units still only account for a very limited amount of the total compensation package, even when including the most recent data for 2010. The financial crisis does not seem to have impacted the structure of equity incentives to a large degree

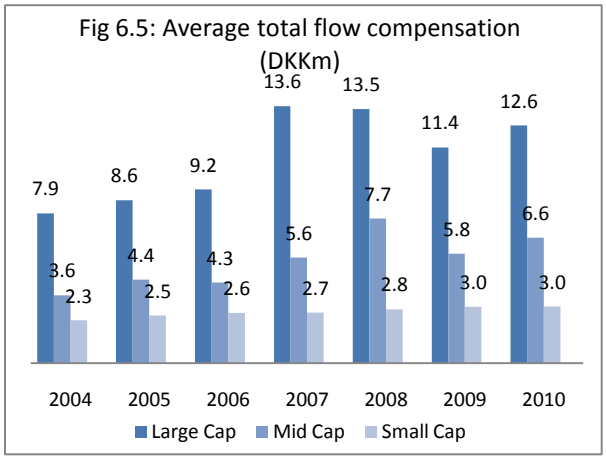
6.1.3. Development by size

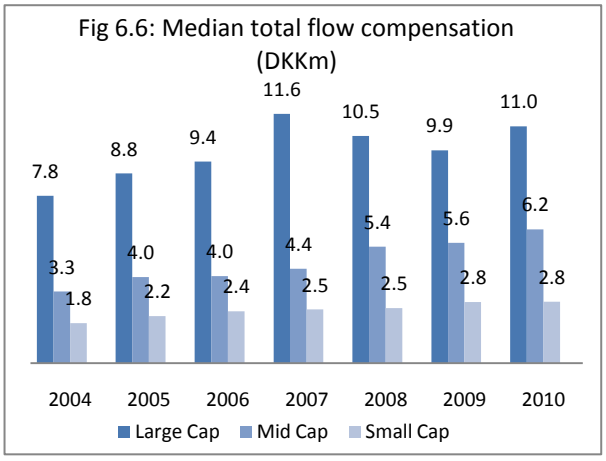
Taking into account the relationship between firm size and level of flow compensation it is possible to divide the sample into large-, Mid-, and Small Cap. Following the definitions applied by NASDAQ OMX the Large Cap includes firms with a market Capitalization over 1 billion EUR, Mid Cap includes firms with a market Capitalization between 150 million and one billion EUR and Small Cap includes firms with market Capitalization below 150 million EUR. The

[26] See appendix 10.3 for a full list of the firms categorized based on their level of influence

development of total flow compensation based on this segment split is displayed in figure 6.5 and figure 6.6.

Both the median and average values follow a similar trend and level indicating that the results show a general pattern amongst Danish firms. The average CAGR over the period has been highest for Mid Cap firms with 10.8 percent. For Large Cap and Small Cap the average CAGR has been 8.0 percent and 4.8 percent respectively. An interesting comparison is that the total return for the three different indexes over the same period has been 112 percent for Mid Cap, 93 percent for Large Cap, and 30 percent for Small Cap. This could be an indication that level of flow compensation is related to size, since Mid Cap companies have experienced the largest growth in both size and flow compensation.





Several empirical results show that there is a clear relationship between firm size and total flow compensation, see for example Zhou (2000) and Conyon et al (2011). We also test this and according to our results a similar relationship exists for Danish firms meaning we can confirm hypothesis 1c. In this case we apply a single regression with total flow compensation as the dependant variable and market Capitalization as the explanatory variable. The appropriate functional form is a Log-Log model as this gives the highest R-square. The results show that for a one percent increase in market Capitalization the CEO experiences a 0.340 percent increase in total flow compensation, which is remarkably close to the European average of 0.348 (Conyon et al, 2011). We refer to appendix 10.1 for a scatter-plot as well as the testing of other functional forms i.e. Lin-Lin and Lin-Log.

	Pay-size elasticity		
	α	β	R^2
Single regression model	-1.20 ***	0.340 ***	0.584

Table 6.1

Previously we argued that it may by misleading to compare our overall results to those of other countries since many firms in our sample are Small Cap companies. Having made the above split we can compare our results for the Large Cap companies with those of Conyon et al (2011) who excludes firms with annual revenue below 100 million EUR. This is not a perfect comparison as all of the Large Cap firms have revenue considerably above this cut-off point however we find it fair enough for this analysis. Especially since there is no upper cut-off point in the analysis by Conyon et al (2011), meaning that some of the firms in other countries can potentially be much larger than the Danish firms. The comparison for 2008 shows that Danish Large Cap firms were paid 4.5 million DKK more than the Swedish firms, 5.9 million less than German firms, and 1.3 million DKK less than the European firms on average[27]. Given the size difference we would expect the numbers for Danish Large Cap firms to be above the European average. This is not the case indicating that total flow compensation in Denmark falls below many of the European peer countries. Furthermore, Sweden as the only other Nordic country included in the analysis also has lower than average compensation, which could point towards Nordic countries in general being compensated less than other European countries.

6.1.4. Other factors

As we established in section 4.1.3 previous research shows a mixed picture when it comes to other factors influencing total flow compensation. Given the focus of this study is on the pay-performance sensitivity and not on flow compensation we will not pursue any further investigation of this topic.

6.2. Development in CEO wealth

In the public debate regarding CEO compensation there is an extensive focus on CEO annual flow payments and to a lesser extent the change in value of the CEO's stock and option portfolio. In the following section we will show that a large part of the CEO's wealth change and thereby also incentive is related to the value of his outstanding portfolio. Within the group of Danish

[27] The reported values in Conyon et al (2011) are recalculated from EUR to DKK using an exchange rate of 7.45

firms the value of the CEO's outstanding stock holdings differs widely. We have identified fourteen firms where the principal and the agent are in fact the same person eliminating the reason for agency costs to occur in the first place (see appendix 10.2). As a consequences the shareholdings, which typically are extremely large, are no longer given as a mean to incentivize the CEO but instead reflect the heritage of the firm. As the aim of this paper is to examine the level of incentives given to CEOs in order to overcome agency problems it is necessary also to analyse the levels without these "special case" firms. As a result of this, the further analysis has been split in two different parts where we begin by examining the entire dataset (including the 14 observations) and in the second part we exclude them, in order to see if they change our conclusions dramatically. In both parts we will examine the outstanding value of options and stocks, and we will compare an adjusted measure for changes in these values with the annual flow compensation.

6.2.1. The complete dataset – 66 firms

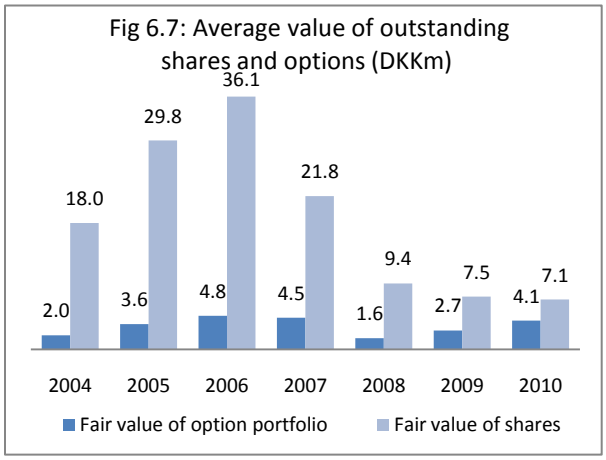
6.2.1.1. Fair value of stock and options

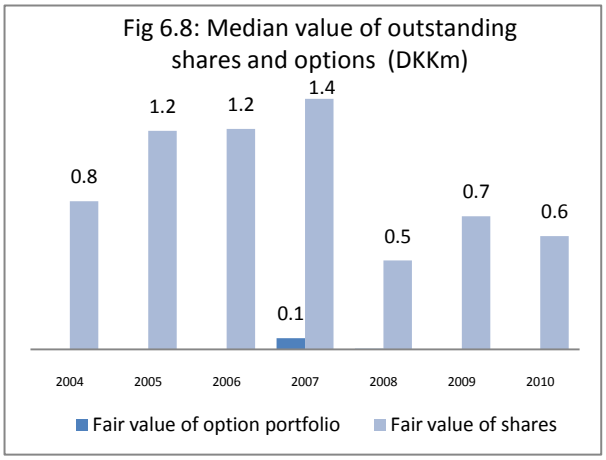
We find it necessary to conduct an analysis including all firms in order to give the overall picture of the actual level of incentives across Danish firms. Figure 6.7 (average) and figure 6.8 (median) show the development between 2004 and 2010 of the CEO's outstanding portfolio of shares and options at year end. The market value of shares is calculated as the number of shares held at the last balance sheet date of the annual report times the closing price of the share at that date. The option values similarly reflect the values at that date.

The average value of shares fluctuates drastically over the duration of the sample period. As apparent the average values show a high appreciation in value between 2004 and 2006. When comparing the average values with the median values it is clear that these increases are caused by a smaller number of firms where the CEO has very large shareholdings rather than a general trend across the all firms. An extreme example of this is Ulf Schack's shareholding in Flügger, which reached 1,021 million DKK in market value in 2006. In order to establish a general idea of the typical value of CEO's shareholding the median values give a more reliable picture in this case.

The average value of the CEO's outstanding option portfolios increases over the period corresponding to a CAGR of 12.6%. It is clear that the fluctuations in option portfolios only

account for a small portion of the total wealth change. The median values show that a large number of the firms do not use option schemes resulting in the figures being equal to or close to zero for many of the years.

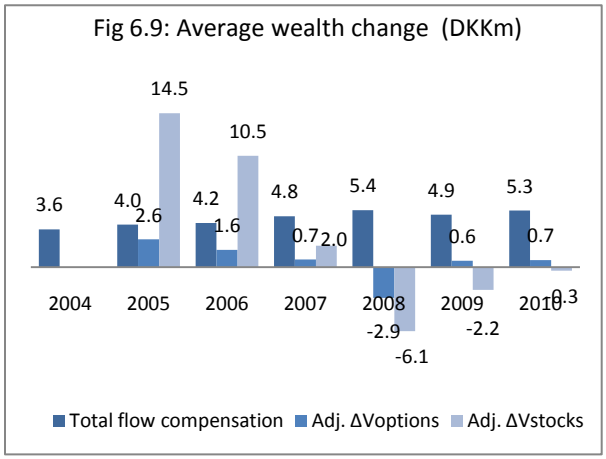


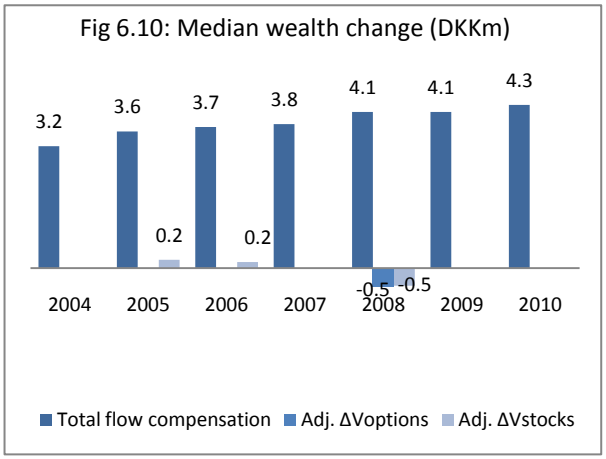


6.2.1.2. Components of wealth change

Figure 6.9 (average) and figure 6.10 (median) compare the changes in option and share value with the annual total flow compensation the CEO receives each year. The option value changes are calculated as explained in section 3.2.1.1 and therefore they cannot be directly compared to figure 6.7 and figure 6.8. This implies that when comparing changes in option and stock values from year to year the most accurate numbers can be found from figure 6.9 as it takes into account if a CEO cashes in or retires.

As 2004 is our base year we have zero information regarding the changes in option and stock values here. In order to reach the CEO's total wealth change it is necessary to add the three components. For example in figure 6.9 for 2005 the value would be 4.0+2.6+14.5=21.1. The changes in the CEO's total wealth are mainly influenced by changes in stock values and to a less extent by total flow compensation and option value fluctuations. The median values are low for changes in both adjusted stock and adjusted option values indicating that there are a few firms where the CEO has very large stock holdings heavily influencing the average values. It also indicates that there exists several firms where the CEO shareholding is small or zero and several firms with small or zero outstanding options.





From the above it is clear that the results are indeed influenced by these 14 outliers. This is clear especially from the big difference between the median and average values that we arrive at. As a result we will focus our future analysis on the dataset excluding the 14 observations, where the principal coincides with the agent.

6.2.2. Limited dataset – 52 firms

6.2.2.1. Fair value of stock and options

The computation of values in figure 6.11-6.14 are similar to those explained in section 6.2.1.1. From figure 6.11 it is apparent that the average value of CEO shareholding falls drastically after excluding the 14 firms. The relative importance of the value of shares outstanding is now less than the value of options outstanding, which is opposite compared to the earlier analysis. The average value of options and stock values increase in all years except in 2008 where there is a drastic depreciation in value reflecting the performance of the KAX (Copenhagen all shares) index. By 2010 the fair value of shares and options is almost back at the level of 2007 indicating that the fall in values and thereby also incentives for the CEO in 2008 has to a large degree been overcome, partly due to the appreciation of share values and partly due new option grants. The higher growth rate of option values compared to stock values between 2008 and 2010 is also driven by the fact that the option delta increases as the options go deeper in the money.

When considering the median values of stocks the numbers are considerable lower when compared to section 6.2.1.1. This indicates that even after excluding the group 14 companies, large differences still persist within the group. This is not completely unexpected as the size of

the firms in our dataset differs to a wide extent. The median value of options is low as there are several CEO's that have little or no option program.

Fig 6.11: Average value of outstanding shares and options (DKKm)

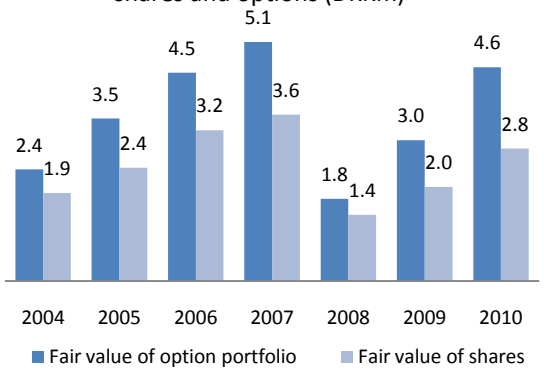
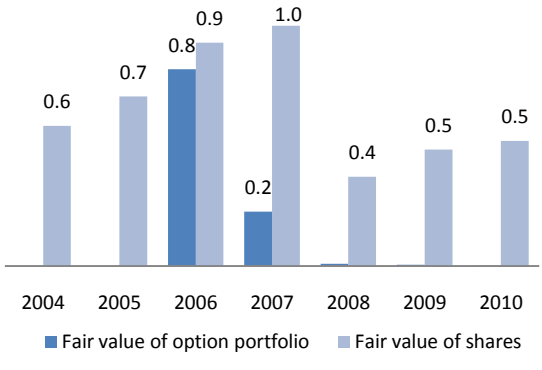


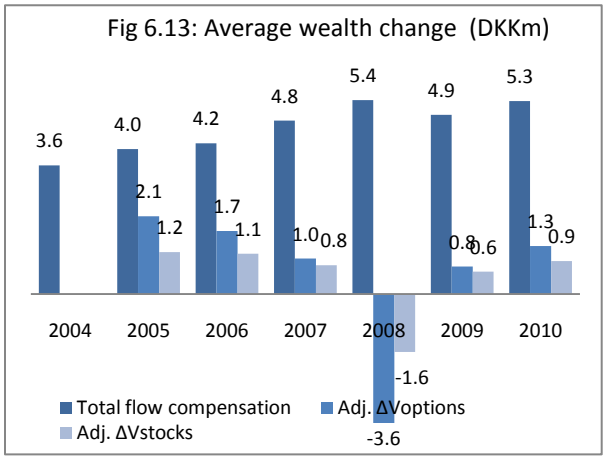
Fig 6.12: Median value of outstanding shares and options (DKKm)

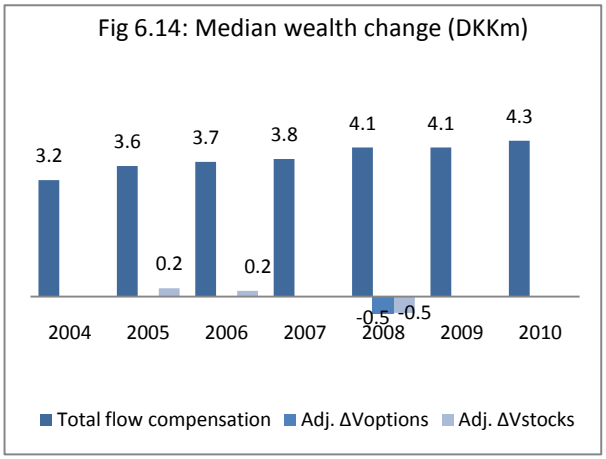


6.2.2.2. Components of Wealth Change

When examining figure 6.13 it is apparent that total flow compensation accounts for the largest individual item influencing total wealth change over the period. However, the combined wealth adjustment derived from options and stocks account for more than 95% of total flow compensation in 2008 and also a large portion in each of the other years. This confirms hypothesis 1d and the importance of also considering the wealth change when evaluating the total CEO remuneration. In 2008 for example the reporting of CEO pay as total flow compensation would have resulted in an average of 5.4 million DKK when in fact taking the change in equity position into account the average CEO earned only 0.2 million DKK. In 2008 the total flow compensation figure significantly overstates the overall CEO wealth change, while in all other years between 2004 and 2010 where option and stock values appreciated the total flow compensation underestimates the average CEO wealth change.

The median values for flow compensation is close to the average values compared to the differences we see between average and median figures for stock and option values. Part of the reason for this is that all CEOs have the total flow compensation component in their compensation package, which is not the case for options and stocks.

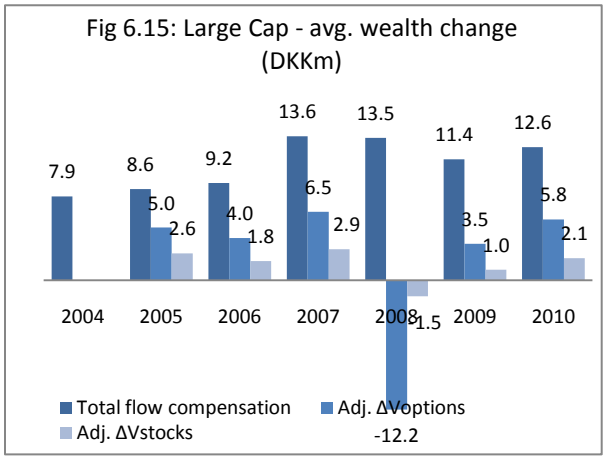


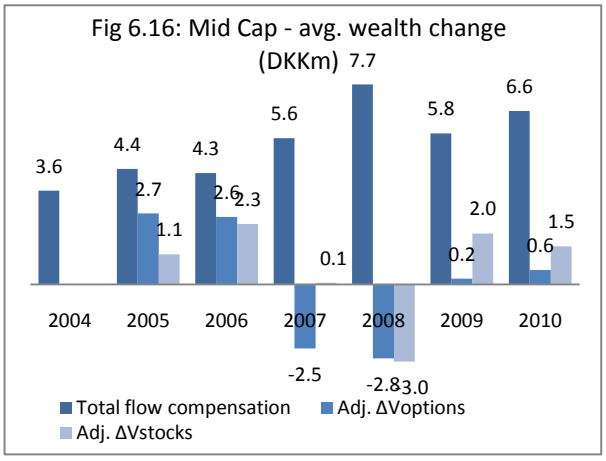


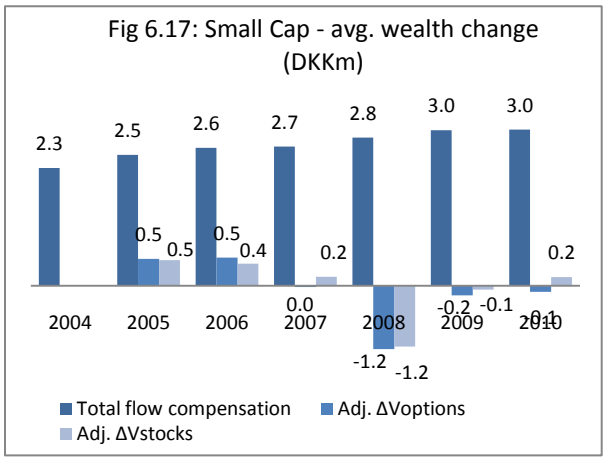
6.2.2.3. Split by size

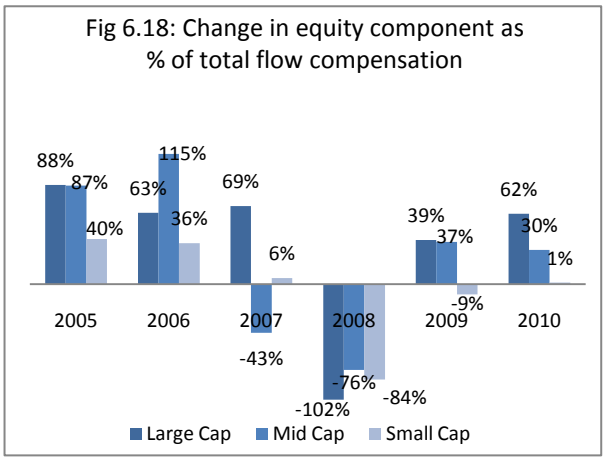
Displayed in figures 6.15, 6.16, and 6.17 are the average values of wealth change split by size. Not surprisingly, there is a connection between firm size and the change in wealth coming from the two equity components in absolute amounts. Especially for CEOs of larger firms the equity components seem to be important when evaluating total CEO remuneration. However, also for small firms the changes in 2008 as a consequence of losses in their value of stocks and options were quite severe.

In figure 6.18 the combined change in value of stock and options is taken as a fraction of total flow compensation. So for example in 2008 the average Small Cap CEO was influenced by a 2.4 million depreciation in equity value corresponding to -84 percent of his total flow compensation ((-1.2-1.2)/2.8 = -84%). Based on this it seems that size influences not only the absolute size of equity changes but also in percentage terms. As such, the Large Cap CEO's have the largest fraction of wealth change coming from equity in all years except 2006 where the measure is higher for Mid Cap firms. Though, in absolute terms the level is still highest for Large Cap firms in this year.









Conyon et al (2011) reports the ratio between the value of shares and options outstanding and total flow compensation. Across European firms the median ratio for 2006 is 4.4 and 2.6 for 2008 (median values). In contrast our results show much lower levels with a ratio of 1.8[28] in 2006, which falls to 0.6[29] by 2008 (based on figure 6.11 and figure 6.13). An important issue relating to our results must be taken into account before any comparisons are made. To our knowledge no other research texts make a similar adjustment removing firms where the principal is also the agent, implying that their results naturally will be higher. If we recalculate the ratio including the 14 firms where the principal is the agent the results show a ratio of 9.7 for 2006 and 2.0 for 2008 (average values).

[28] ((4.5+3.2)/(4.2) = 1.8)
[29] ((1.8+1.4)/(5.4) = 0.6)

6.3. Testing for pay-performance

After having gone through the results of the first part of our assignment we now extend it to focusing on the main part, namely the pay performance relationship. The following results will draw on the part of the theoretical analysis where we derive the equations needed to measure the pay-performance relationship. Refer to section 3.2 for a complete specification of the different notations.

When describing the overall level and structure of compensation practices in the previous section, it was found necessary to exclude 14 companies where the agent (the CEO) was considered also to be the principal (major shareholder), thus mitigating the cause of agency costs, and creating some radical outliers. We have chosen to be consistent and exclude these observations completely from further analysis.

In order to be able to compare our results with earlier findings we first examine the pay-performance relationship using a linear regression approach similar to those used in the established literature. In order to take into account that we are dealing with a pooled dataset we also perform this regression using a fixed effect model (see section 6.3.1.1). During the analysis our results will be held up against previous research as highlighted in section 4.2 as well as different internal results will be compared. After determining the size of the relationship between pay and performance, further effort will be put into elucidating the nature of this relationship, both in terms of what structural components drive it, if it can be extended to relative performance, and what firm characteristics may be dictating a strong relationship.

6.3.1. Overall

The results of our initial pooled regressions on the data for the entire period are disclosed below (See appendix 10.9)[30]. The table display results for all three statistics used in this study. We report the estimators for both the intercept and the coefficient, with their respective significance levels (* indicating 90 percent significance level, ** indicating 95 percent significance level, and *** indicating 99 percent significance level). The intercept α has different interpretations for the different statistics, but does not contain any informative value to this study, hence we will comment no further on it. The β in turn is what dictates the relationship between changes in CEO

[30] Complete regression tables from SAS is included for all regressions performed in appendix 10.9

wealth and firm performance, and therefore what is interesting to look at. The interpretation of β in the Jensen & Murphy statistic is change in CEO wealth measured in DKK for a 1000 DKK change in shareholder value. *B* in the equity at stake measure represents change in CEO wealth in DKK for a one percentage change in firm value. In regards to our last measure, elasticity, β is the percentage change in CEO wealth for a one percentage change in firm value. Last we report the R^2 for the respective regressions in order to display how well the data fits the regression line and thereby the explanatory power of the model.

	Jensen & Murphy			Equity at stake			Elasticity		
	α	β	R^2	α	β	R^2	α	β	R^2
Full period	5.5m ***	0.51 ***	0.2977	5.4m ***	86,460 ***	0.256	1.90	0.46 ***	0.456

Table 6.2

All parameters are significant on a 99% level. The Jensen & Murphy statistic reports that a Danish CEO on average receives 0.51 DKK for every 1,000 DKK increase in shareholder wealth created. The equity at stake measure states that a CEO will receive 86,460 DKK for every percentage point increase in shareholder return. Last our elasticity measure tells us that on average a Danish CEO will experience a 0.46% increase in wealth for every one percentage point increase in shareholder return. R^2 of the three models ranges from 0.256 to 0.456 implying that the models have reasonable explanatory power. Given the large difference between firms in our dataset it seems reasonable that R^2 will be relatively low when pooling all observations together, especially in the case of the Jensen & Murphy statistic (and equity at stake), since they report (partly) on absolute numbers. The elasticity measure on the contrary reports only percentage change and thereby levels out differences such as firm size and makes observations across firms more comparable. Therefore it makes sense that the R^2 of the last regression is so much higher.

6.3.1.1. Measuring the link using a fixed effect model

As previous argued our dataset consists of a cross section of companies that differ greatly in terms of industry, size and other characteristics. Thus a fixed effect model taking into account differences between firms may be more appropriate in estimating the slope coefficient of the β's. In the following results we introduce firm specific intercept dummies in order to control for the firm effect. The results are as follow:

	Jensen & Murphy			Equity at stake			Elasticity		
	α	β	R^2	α	β	R^2	α	β	R2
Fixed effect model	1.4m	0.28 ***	0.596	1.7m	64,493 ***	0.574	6.57	0.48 ***	0.548

Table 6.3

All three coefficients reported show a similar pattern as when not controlling for firm effects, which enforces our previous conclusion that a relationship does exist between change in CEO wealth and firm performance. The first two measures though are somewhat lower in absolute terms, which indicate that within a majority of the firms the relationship between CEO wealth change and performance is significantly lower than the average we find when using pooled regression. This is not a surprising result when considering our previous finding that only 38 out of 66 companies do grant options during the period and only 14 of them grant options on a consistent basis. The elasticity measure 0.48%, which is in line with our previous results, and can again, be explained by the fact that both sides of the regression equation is in relative terms. When looking at the R^2 of the three regressions it is significantly higher for our first two measures and on par for our elasticity measure. This dictates that inter-firm differences do exists and that a fixed effect model is more appropriate to explain the relationship, thus we will use this format in the following regressions. The results from using a fixed effect model are all significant and show the same relationship as when using pooled regression, however somewhat smaller.

If we are to compare our results to those brought forward in the literature review the Jensen & Murphy statistic and the elasticity measure can be compared without any intervention. In comparing the equity at stake measure however, an adjustment needs to be made in order to take into account that results are denominated in different currencies.

Our Jensen & Murphy statistics of 0.28 DKK for the entire period is extremely low when compared to results from the US. Jensen & Murphy (1990) originally reports a figure of 3.25 for a 12 year period ending in 1986. Using more recent data Frydman & Jenter (2010) finds that the figure has increased to 6.40 by 2005. In the literature review we have already highlighted that results from outside the US are much lower. More specifically a UK study estimates a figure of 1.81 in year 1998 (Buck et al 2003). Unfortunately more recent comparable data does not exist. It is thus expected that our results are lower than in the US, however 0.28 is remarkably low also in comparison to the UK results. If we add the factor that our results are from a later period and that

one would expect the relationship between pay and performance to become stronger with time (See section 4.2) it seems fair to conclude that the pay performance relationship for Danish firms is insufficiently low. Moreover the Jensen & Murphy statistic is inversely related to firm size, meaning that it will, ceteris paribus, be lower for larger companies. The median market capitalization for our sample is 509 million DKK, whereas the median market capitalization of the sample in Buck et al (2003) is 1410 million GBP corresponding to approximately 12.9 billion DKK[31]. All other things being equal the UK statistic should therefore be smaller than the one for DK, which is another argument for why the 0.28 for Danish firms is an extremely low figure.

Equity at stake on the contrary takes firm size into account when considering shareholder return. If we convert our figure of 64,493 DKK we get 11,455 USD[32]. Hall & Liebman (1998) in comparison gets an average figure for the US over the period from 1980 to 1994 of 43,000 USD. They show that the relationship increases steadily over the period and reports a figure from 1994 of 124,000 USD. Frydman & Jenter (2010) has likewise updated the equity at stake measure for the US and find that the measure increases fourfold in the period from 1992 to 2005 to a value of 683,000 USD, which is significantly higher than the result we find. Earlier we established that the level of pay in the US is in general much higher than in the rest of the world. If we take into account this fact and look at the equity at stake measure as a percentage of median flow compensation, the figure for US in 2005 is 9.8%[33] whereas for the corresponding figure for a Danish CEO is 1.6%. Again it is fair to conclude that Danish CEOs are not very well incentivized compared to their US counterparts. Unfortunately it has not been possible to find comparable data for the equity at stake measure for countries outside the US.

The same conclusion is reached when looking at our results on the elasticity measure, despite it being the most comparable measure across firms (and thereby also different studies) since it only reports relative figures. Our result of 0.48 is again remarkably low. In the US Hall & Liebman (1998) finds that elasticity has reached a level of 3.94 in 1994. Frydman & Jenter (2010) do not directly report the measure however using their equity at stake measure and the average flow compensation figure for 2005 we get an estimated elasticity figure of 10.5. Outside the US the comparable figures are lower though still above the DK level. For Australia in the period 2005-

[31] Using an average exchange rate for 1998 of 9.15 DKK/GBP
[32] Using the average exchange rate over the period 2004-2010 equal to 5.63 DKK/USD
[33] Calculated using figures given in Frydman & Jenter (2010)

2006 Tian & Twite (2010) finds an elasticity figure of 0.7, and in the UK in 1998 Buck et al. (2003) calculate elasticity of 2.6.

As a result of comparing our results both to those found in the US but also in Europe we find that we can confirm our hypothesis 2a and conclude that a positive relationship does exists in Denmark between CEO wealth and firm performance. As expected the level is lower than in the US, however it is surprisingly low also when compared to European results.

6.3.2. Development over the period

After having estimated the regressions for the full period we have chosen to examine how the relationship evolves over the period. Inspired by the approach used in Hall & Liebman (1998) individual regressions are performed for each year, meaning our dataset is treated as six individual cross sectional sets. As a result we use a simple OLS regression without the need for taking fixed effects into account.

	Jensen & Murphy			Equity at stake			Elasticity		
	α	β	R^2	α	β	R^2	α	β	R^2
Full period	5.5m ***	0.51 ***	0.2977	5.4m ***	86,460 ***	0.256	1.90	0.46 ***	0.456
2005	5.3m ***	0.53 ***	0.3569	7.1m ***	-10,920	0.004	10.43 *	0.35 ***	0.177
2006	4.9m ***	0.89 ***	0.4587	3.6m ***	121,110 ***	0.256	8.03 *	0.40 **	0.233
2007	6.5m ***	0.85 ***	0.3483	5.9m ***	125,000 ***	0.242	5.90	0.63 ***	0.444
2008	1.5 **	0.12 ***	0.209	3.9m ***	56,720 ***	0.163	2.18	0.56 ***	0.254
2009	5.4m ***	0.47 ***	0.339	5.4m ***	89,420 ***	0.396	-4.08	0.49 ***	0.531
2010	5.2m ***	1.52 ***	0.6316	5.7m ***	136,570 ***	0.331	3.53	0.51 ***	0.399

Table 6.4

When considering the development of the three measures it is important to note how they respond to changes in share prices. Assuming for a second that the CEO's portfolio only consists of stocks the Jensen & Murphy statistic will not be influenced by changes in share prices, while the elasticity measure is somewhat influenced by share prices, and the equity at stake measure is highly influenced by changes in share prices. The following example can illustrate the point.

Assume a firm is worth 100 million in year one, the CEO owns five percent (five million value) and receives one million in annual flow compensation. By year two the firm value has dropped to 50 million with the CEO having an unchanged ownership stake and unchanged salary. In Jensen and Murphy terms the sensitivity to a 1,000 DKK increase in shareholder value will be the same for both years, namely 50. For the elasticity measure a one percent increase in shareholder value in year one will lead to a one percent increase in the value of stock holdings for the CEO equal to 50,000. Measured in comparison to total wealth we get: 50,000/6,000,000 = 0.8%. For year two we get: 25,000/3,500,000 = 0.7% showing that the elasticity will fall automatically as a result of falling share prices. For the equity at stake a one percent change in shareholder value will lead to a 0.01*5,000,000 = 50,000 change in wealth in year one, whereas in year two this number will fall drastically as 0.01*2,500,000 = 25,000. Therefore, when examining the development one should be careful as there in some years are large share price fluctuations as for example in 2008. Another important point is that in this simple example we have ignored that the equity portfolio of the CEO typically consists of both stocks and options. Options are a leveraged instrument with fluctuating deltas meaning that all three measures will per definition increase/decrease in response to increasing/decreasing share prices. This means as options move out of the money, the delta moves towards zero causing the pay-performance link to weaken. Given that a large part of the portfolios consist of options this could be a potential explanation for why the Jensen & Murphy statistics falls from 2007 to 2008.

Drawing on the results from all three measures it is evident that there is an increasing trend in the period 2005-2007. In 2009-10 the equity at stake and Jensen & Murphy measure increases to above previous levels, whereas the elasticity measure increases only moderately over the period. On an overall level it seems reasonable to confirm the trend found in most other studies (Hall & Liebman, 1998; Frydman & Jenter, 2010) that the relationship between CEO wealth and performance is increasing, at least slightly, over time.

6.3.3. Decomposition of the relationship

Having established that a significant relationship between CEO wealth and firm performance does exist, we find it interesting to study this relationship in more detail. In order to measure which factors are the main drivers of the pay-performance relationship we run individual regressions for each component of CEO wealth change (flow compensation, change in value of

stocks, and change in value of options) and shareholder return. It is only done for the Jensen & Murphy statistic and the equity at stake measure. The elasticity measure has not been used in this case since in many of our observations it would involve taking the natural logarithm to a negative number ($\Delta V_{options}$ and ΔV_{stocks}) or dividing with zero, which is not possible either[34]. These mathematical issues force us to leave out too many observations, leaving us with a substantially different dataset, and thereby not making it comparable to our previous results. The regressions are run as fixed effect models including individual intercepts for each firm in order to control for structural differences in the level of the firms.

	Jensen & Murphy				Equity at stake		
	α	β	R^2		α	β	R^2
Flow	1.4m	0.00	0.750		1.4m	-4,050	0.753
$\Delta V_{options}$	0.0m	0.22 ***	0.389		0.22m	47,496 ***	0.312
ΔV_{stocks}	-0.0m	0.05 ***	0.335		0.1m	21,044 ***	0.418
Sum of Coefficients		0.27				64,490	

Table 6.5

From the results it appears that no relationship exists between flow compensation and performance, which is not surprising considering the mixed results found in previous studies. It can be argued though that flow compensation is more related to last year's performance since a large part of it (base salary, pension, and stock/option grants) are determined in the beginning of the year on the basis of previous year's performance. As a result we tried to include lagged performance into our model, though found no significant relationship either.

Change in value of options on the contrary seems to be what accounts for approximately 70% of the total wealth change of CEOs. This corresponds well with our findings in section 6.2.2, which shows that the Danish CEOs has more wealth tied up in options than in stocks[35]. In comparison Jensen & Murphy (1990) and Hall & Liebman (1998) both find that the pay-performance relationship is driven mainly by stock ownership. Jensen & Murphy (1990) finds that change in value of options only accounts for 5.6% of total sensitivity, including only the factors we

[34] If a CEO increases his holdings of options or stocks from an initial level of zero it is not possible to calculate the percentage increase

[35] See figure 6.11

incorporate in this regression model. Hall & Liebman (1998) holds flow compensation constant (meaning they ascribe no relationship to that factor either) and finds that options only account for 14.6% of the combined wealth change related to stocks and options. When comparing it is important to reiterate that we have left out the 14 firms where the CEO was considered the principal and thereby holds a large amount of stocks. Including these would naturally have inflated the importance of stock ownership. However, this is still quite a significant finding and leads to the rejection of hypothesis 2b, and concluding that options and not stocks seem to be driving the relationship.

6.3.4. Relative performance

In the literature review the merits of measuring managers in accordance to their relative performance instead of absolute performance is explained. Optimally a manager should be incentivized to outperform his peers and thus the relative performance measure should be that of a well-defined peer group. Due to our large sample size we have chosen to use the market as the relative performance benchmark. Below are the results listed (See section 3.2.3 for complete regression equations). In terms of method we replicate both those of Jensen & Murphy (1990) and Hall & Liebman (1998), which are slightly different from each other but in principal lead us to the same information. This implies that the B in the Jensen & Murphy statistic refers to *abnormal* wealth creation. For the two latter regressions the market return is included as a separate measure where β_2 represents the market return and β_1 represents company return. The interpretation is that if CEOs are rewarded for creating abnormal return β_1 would have to be significant and positive while β_2 would have to be significant and negative.

	Jensen & Murphy			Equity at stake				Elasticity			
	α	β	R^2	α	β_1	β_2	R^2	α	β_1	β_2	R^2
Fixed effect model	1.4m	0.00 ***	0.520	1.7m	63,862 ***	1,585	0.574	5.17	0.44 ***	0.10	0.551

Table 6.6

The coefficient of the Jensen & Murphy statistic is extremely low meaning that CEO wealth will increase by 0.0021 DKK for every 1000 DKK of abnormal shareholder wealth created, which is practically zero. However the parameter is significant indicating that a tiny relationship maybe does exists between CEO wealth and relative performance. Looking at the reaming two the results show a different picture. In both regressions the coefficient β_1 denominating firm

performance is highly significant and almost equal to the results we get from not including market performance. β_2 on the contrary is small in both cases and insignificantly different from zero indicating that no relationship exists between wealth and relative performance.

The mixed results found by previous scholars led us to Hypotheses 2b stating that no relationship would exists between pay and relative performance. This can now be confirmed on the basis of our analysis. We see this as a significant finding since the importance of this area has been highlighted in academia now for 30 years without practitioners acknowledging this. Implications of this will be discussed in section 7.4.

6.3.5. Factors affecting the relationship

In order to try and explain if any common factors exist within firms with a high pay performance relationship, we decide to run regressions where we control for a number of different factors. Taking into account the information constraints that exists we have highlighted a limited number of factors that we wish to control for, which are summed up in the table below:

Factor	Dummy variables	Cut off point
Size	Small Cap Mid Cap Large Cap	< EUR 150m EUR 150m< - < EUR 1bn > EUR 1bn
Industry (GCIS)	Consumer Discretionary Health care Industrials Materials Consumer Staples IT Financials Utilities	
Influence from institutional investors	Proportion of shares owned by institutional investors	> 20% → 1 < 20% → 0
Influence from block holder	Percentage of shares owned by largest shareholder	> 20% → 1 < 20% → 0
Riskiness of firm	Firm specific beta	> 1.0 → 1 < 1.0 → 0
Leverage	Debt to enterprise value	> Average → 1 < Average → 0

Table 6.7

The factors are chosen on the basis of the findings in our empirical analyses about what previous studies have related to compensation practices and our personal economic reasoning.

Statistically it would be optimal if all dummies could be included in one regression. Any significant effect could then be singled out in the presence of all other variables. This would ensure that any relationship found significant is not caused by a potential lurking variable. Because of certain information constraints this is unfortunately not possible. In general data is only available on a consistent basis for the latest year, i.e. 2010. Size and industry however are relatively fixed and firms do not jump from one category to another over the period of our study meaning that the value can be held fixed for the entire period and the complete dataset can be employed in the regression. For the last four categories this is not the case, forcing us to split up the analysis. As a result we will begin by looking at size and industry effects and then go on to controlling for the remaining four categories in a cross sectional data sample using only observations from 2010. This in turn makes it impossible to include industry dummies since the different categories would hold too few observations.

6.3.5.1. Controlling for size and industry

Using a fixed effect model we run regressions for both the equity at stake and elasticity measure[36]. In our regression we include interaction dummies (Dummy*Return) for both size and industry categories. We intentionally avoid introducing intercept dummies for the size and industry categories since these are already taking into account by the fact that we use a fixed effect model with individual intercept for each company. The specific regression equation thus becomes:

$$\Delta W_{CEO} = \alpha_1 + \alpha_2 D_{Company,2} + \ldots + \alpha_n D_{Company,n} + \beta_1 r_{i,t} + \beta_2 (D_{MC} * r_{i,t}) + \beta_3 (D_{LC} * r_{i,t}) + \beta_4 (D_{Industry,2} * r_{2,t}) + \ldots + \beta_n (D_{Industry,n} * r_{i,t}) + \varepsilon$$

Where:

D_n = Intercept dummy for company n (creating the fixed effect)

D_{MC} = Dummy indicating Mid Cap company

D_{LC} = Dummy indicating Large Cap company

$D_{Industry,n}$ = Dummy indicating company is from industry n

[36] We neglect the Jensen & Murphy statistic completely from this part of the analysis since it is too reliant on firm size to be a useful measure (Baker & Hall, 2004)

We also leave out one dummy for each factor in order to avoid the dummy trap of perfect collinearity between the variables (Gujarati & Porter, 2003). The omitted interaction dummy for both size and industry becomes the benchmark category, against which the other categories are measured. If a given coefficient turns out to be significant it tells us that the given category is different from the benchmark. It does however not tell us anything about how the remaining categories differ internally. In order to mitigate this we chose to run individual equations where each size and industry is set as the benchmark category. This provides us with a detailed picture of all possible differentials between both industries and size categories. Despite the regressions include both the size and the industry factor we choose to display the results in two different tables in order to be able to discuss the results individually. Below are the results from the size factor displayed. The left hand column indicates which category has been set as benchmark category. The first column to the right lists the results from the dependent variable representing the pay-performance relationship within the given benchmark category. Each cell includes two figures and their respective significance level, where the top figure is the equity at stake measure (abbreviated EAS) and the lower figure indicates the elasticity. The following two columns indicate the results for the interaction dummy categories, which represents the difference from the benchmark category and if this is significant or not. The number thus has to be added to the benchmark category in order to get the full effect of the category.

		Dependent variable	Slope interaction dummies (Dummy*Return)	
(Benchmark Category)		Return	Mid Cap	Large Cap
Small Cap	*EAS*	13,690	86,460 ***	176,910 ***
	Elasticity	0.17	0.33 ***	0.34 ***
Mid Cap	*EAS*	100,150 ***		90,450 ***
	Elasticity	0.46 ***		0.02

Table 6.8

Interpreting the above results tells us that from looking at equity at stake, size becomes a significant explaining factor. CEOs in Small Cap companies on average get DKK 13,690 for every percentage-point increase in shareholder return. CEOs in Mid Cap companies receive DKK 86,460 more than Small Cap CEOs, whereas CEOs in Large Cap companies receives DKK

176,910 more than their Small Cap peers. When comparing these figures with median total flow compensation between 2005 and 2010 from figure 5.2 the equity at stake accounts for 1.7% for Large Cap, 1.8 % for Mid Cap, and 0.5% for Small Cap. A similar finding can be observed when looking at the elasticity measure, which per definition is more comparable across companies of different size than the measure of equity at stake. We see that both Mid and Large Cap CEOs receive more than their Small Cap peers, namely 0.33 and 0.34 percent in addition to the estimated 0.17 percent Small Cap CEO gets for increasing shareholder return by one percentage-point. Worth noticing however is that neither of the two results for the Small Cap benchmark group is significant indicating that we cannot reject the hypothesis that pay-performance relationship is zero in Small Cap companies. The second row shows the results from setting Mid Cap as the benchmark, here it becomes clear that there is a significant difference between Mid and Large Cap measured using equity at stake however that no significant difference is found when using elasticity. As a result the absolute wealth change is greater for Large Cap CEOs but in relative numbers they seem to be equally motivated towards increasing shareholder return.

On the basis of our results we find it fair to conclude that firm size is a determining factor in determining the strength of the pay-performance relationship, since no significant relationship exists within Small Cap firms. This is opposing any previous findings and leads us to the rejection of hypothesis 2c, stating that the strength of the relationship is negatively related to size.

The results from the industry factor are not nearly as clear-cut as those from size. This can partly be explained by two limitations of our analysis. First of all we choose to use GCIS industry codes in order to secure an objective and general division of the companies. The lack of specificity in the categories means that firm with very different characteristics are bundled together. One example of this is that all property companies are included in the financial category. This may be a reason why it can be hard to conclude anything on the basis of industries. The reason why we chose not to use more specific industry definitions is because of the limited number of companies in our dataset will not be able to provide enough observations for more categories. Despite our general approach two categories namely Utilities and Consumer Staples only includes observations from a single and two firms respectively. This means that despite any significant results within these categories nothing can be concluded on that basis. In table 6.9 all results are listed using the same approach as before.

		Dependent variable	Slope interaction dummies (Dummy*Return)						
Benchmark Category	Measure	Return	Health care	Indus-trials	Mate-rials	Finan-cials	IT	Cons. Staples	Utilities
Cons. Discretio-nary	*EAS*	13,690	-22,830	18,990	5,840	-700	-21,390	6,730	36,430 **
	Elasticity	0.17	-0.05	0.25 *	0.24	0.19	0.11	0.33 **	0.60 ***
Health care	*EAS*	-10,140		42,820	29,670	23,080	2,440	30,560	60,260 **
	Elasticity	0.12		0.30 **	0.29	0.24 *	0.16	0.37 ***	0.65 ***
Industrials	*EAS*	32,680 ***			-19,740	-13,140	-12,250	-40,380	17,440
	Elasticity	0.42 ***			-0.01	-0.06	-0.14	0.07	0.35 ***
Materials	*EAS*	12,940				6,590	7,480	-20,640	37,180
	Elasticity	0.41 **				-0.05	-0.12	0.08	0.36 *
Financials	*EAS*	19,530 ***					890	-27,230	30,590 ***
	Elasticity	0.36 ***					-0.08	0.13	0.41 ***
IT	*EAS*	20,420 **						-28,120	29,700 ***
	Elasticity	0.28 ***						0.21 *	0.49 ***
Cons. Staples	*EAS*	-7,700							57,820 **
	Elasticity	0.49 ***							0.28 **

Table 6.9

As stated, if we neglect the last two categories Consumer Staples and Utilities, not many significant results appear. Only Industrials is significantly higher than Health Care when measured using the elasticity measure (on a 95% confidence level). If the confidence level is extended to 10% a few more differentials occur though we do not find it valid to draw conclusions on such a level when considering the scope of our dataset.

The main conclusion must therefore be that on the basis of our dataset there seems to be no significant relationship between pay-performance sensitivity and industry. This means that we cannot confirm our hypothesis 2d about a higher pay-performance relationship exists within the financial sector and high growth industries.

6.3.5.2. Controlling for size and other factors

Having established that size seems to be the controlling factor when industry categories are included in the regression we turn to examine if any of the remaining four factors may have significant influence on the pay-performance relationship in Danish listed companies. In order to

do so we focus solely on the observations from 2010 limiting our data sample to 55 observations. Since size was found to be the significant factor in our last regression we have chosen to include it again in order to make sure it is not a lurking variable affecting our results. Furthermore in this regression we include intercept for each dummy as well. This is possible since it is a simple linear regression model and not a fixed effect model on a panel dataset. The specific equation takes the form:

$$\Delta W_{CEO} = \alpha_1 + \alpha_2 D_{MC} + \alpha_3 D_{LC} + \alpha_4 D_{Factor,2} + \ldots + \alpha_n D_{Factor,n} + \beta_1 r_{i,t} + \beta_2 (D_{MC} * r_{i,t}) + \beta_3 (D_{LC} * r_{i,t}) + \beta_4 (D_{Industry,2} * r_{i,t}) + \ldots + \beta_n (D_{Industry,n} * r_{i,t}) + \varepsilon$$

Where:

D_{MC} = Dummy indicating Mid Cap company

D_{LC} = Dummy indicating Large Cap company

D_n = Intercept dummy for factor n

In this model we again leave out a dummy for Small Cap in order to avoid the dummy trap. The remaining categories on the contrary are all included, as they are not mutually exclusive. The benchmark category in this regression therefore becomes a Small Cap company with no block holders, no significant institutional ownership, a beta below one, and below average leverage. When imposing these constraints we end up with a benchmark group of 12 firms which is acceptable considering our overall sample size of 55. The results of the regression are included in the table below:

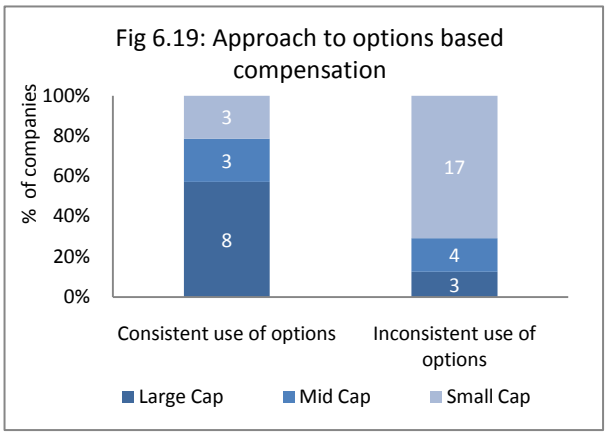
	Equity at stake				Elasticity		
	α	β	R^2		α	β	R^2
Return (Benchmark)	3.9m ***	6,780	0.805		13.48	-0.08	0.621
Mid Cap	0.83m	71,136			-2.32	0.56 **	
Large Cap	9.1m *	169,290 **			-6.13	0.83 ***	
Influence form institutional investor	1.9m	92,265 **			-3.05	-0.01	
Influence from block holder	1.0m	9,680			-7.48	0.15	
Riskiness of firm	-5.3m	-54,240			-22.12 **	0.21	
Leverage	-0.6m	43,910			-10.94	-0.11	

Table 6.10

As was the case with our initial equation we do not assign any analytical value to the intercepts and instead focus solely on the slope coefficients that dictate the pay-performance sensitivity. Our finding from the last regression that size is an important factor has not changed significantly by including these additional variables, which further enforces the significance. Only the equity at stake measure for Mid Cap is insignificantly different from the benchmark category. By including these additional factors however the elasticity reported for Large Cap CEOs become higher than both Small Cap and Mid Cap CEOs. This is confirmed by performing an F-test with the null hypotheses that Mid Cap is not significantly different from Large Cap. The result is a rejection of the null hypothesis and we can conclude that the elasticity is stronger for Large Cap than for Mid Cap. The remaining four factors that we control for in our model show little explanatory power over the pay-performance sensitivity. Only the presence of an institutional investor shows significance when using the equity at stake measure, whereas when using elasticity it is not significant. As a result we do not find it convincing to conclude that institutional investors have an impact on our dependent variable.

The overall conclusion of the above analysis is that only size seems to have significance when trying to explain the level of pay-performance sensitivity in Danish listed firms. This further confirms our conclusion about rejecting hypothesis 2c. When examining the firm's compensation practices individually this does not come as a surprise. In most cases it tends to be the large companies that are more consistent in their approach to granting options and RSUs, whereas

many of the smaller companies tend to establish a program that runs over a number of years and then they either have a gap before the next program is in place or they shy away from using options completely. The distribution of consistent usage of options is depicted in the graph, where consistent implies no breaks[37].



6.4. Delta

In our literature review we highlighted an additional method in measuring the relationship between pay and performance, namely the delta of the combined portfolio of the CEO. From our regressions analysis we have already established that the pay-performance sensitivity is driven by the CEOs equity portfolio therefore it makes sense to look at it in isolation using delta as a measure of exposure. As argued earlier delta has its strengths and weaknesses. On the positive note it is a forward looking measure whereas all our regressions focus at historical events. On the negative side delta is a linear estimate of a non-linear relationship (in the case of options) making it unreliable for large changes in the share price (see section 3.2.4).

Delta can be used to quantify the equity incentive at a certain point in time as it shows the change in value of options and stocks for a 1 DKK change in stock price. As the trading prices of stocks differ widely it has been necessary to re-compute the measure so it reflects the change in value for a one percent change in share price. In our case the change in value is given in million DKK. I.e. by the end of 2004 the typical CEO would have experienced an increase in his value of stocks and options of 82,700 DKK (average) in response to a 1 percent increase in stock price. The delta measure functions well as an indicator of CEO incentives going forward. However, it is difficult to determine what causes the movements from year to year. For example the delta of options falls as the share prices depreciate and the options moves out of the money. The portfolio delta value of options can also be distorted if the CEO exercises his options and sell the corresponding number of shares during the year. Furthermore, simple changes in the CEO's shareholdings will

[37] Danske Bank is considered consistent as we assume they stop granting options as a result of regulation. Simcorp is likewise considered consistent as they first stop granted options in 2010 where they are replaced by RSUs

also affect the combined portfolio delta either positively or negatively depending on whether the CEO chooses to increase or decrease his ownership stake in the firm.

For all firms the CAGR for the delta over the period is 7.2 percent (average) and -5.7 percent (median) making it difficult to conclude anything about the general trend in equity incentive based on this measure (see figure 6.20).[38] The large difference between average and median values over the period indicates that there is no general level of equity sensitivity. From 2004 to 2007 the level of incentives for the CEOs increase at a rather rapid pace partly due to larger option grants during this period and partly due to increases in stock levels. The fall from 2007 to 2008 occurs despite option grants were at their highest level in 2008. After 2008 the median and average no longer follow the same trend indicating that in a few number of firms the CEO's total portfolio has increased significantly while for many others this has not been the case.

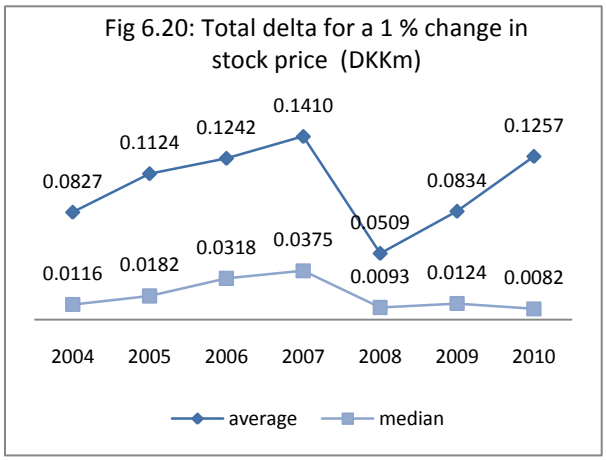
6.4.1. Split by size

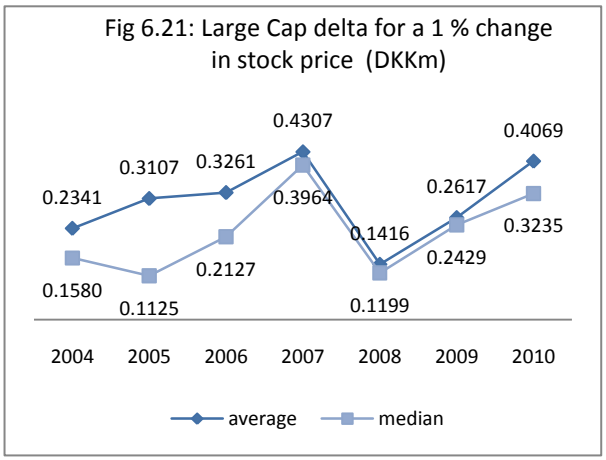
The large difference between median and average values is to a large extent caused by the difference in firm size as apparent from figures 6.21, 6.22, and 6.23, which display the average and median values for Large Cap, Mid Cap, and Small Cap respectively. When splitting the delta values by size the spread between median and average values decreases for each group. This implies that the numbers for each group give a more informative picture of the level of incentives given to CEO's than looking at the aggregate numbers. For Large Cap and Mid Cap there is a clear trend showing that the equity incentives increase over the period from 2004 to 2010. As such the CAGR is 9.6 percent (average) and 12.7 percent (median) for Large Cap, and 11.3 percent (average) and 9.5 percent (median) for Mid Cap. In contrast the CAGR figure for Small Cap is -4.6 percent (average) and -1.0 percent (median).

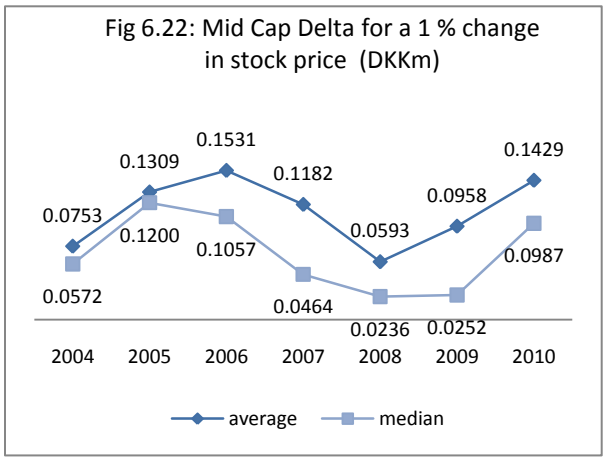
It is worth noting that the incentives for Large Cap and Mid Cap increase after 2008, whereas the incentives for Small Cap remain virtually unchanged when comparing figures for 2008 with those for 2010. This can partially be explained because out of the 33 firms included in the Small Cap measure 9 of these are financial institutions that have participated in the Danish Government bailout plans to financial institutions (Bankpakke 1,2, and 3). As a requirement for participation these firms were restricted by law from issuing new option grants, which has adversely affected the level of incentives in the period between 2008 and 2010 for Small Cap firms. In comparison

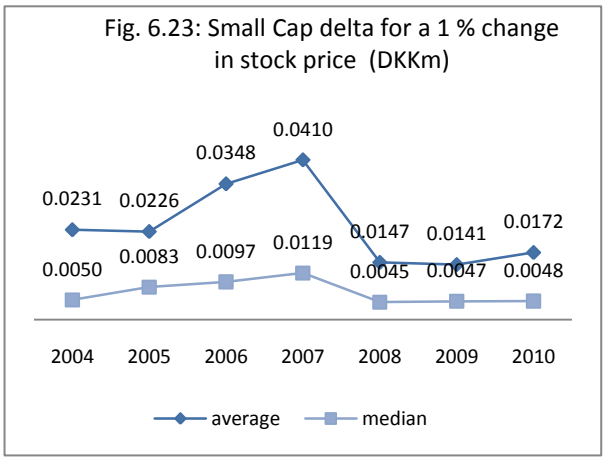
[38] See appendix 10.4 for the computation of delta for whole sample of 66 firms

the only financial institution from the Large Cap is Danske Bank and there are zero financial firms in Mid Cap index.









6.4.2. Testing validity of delta

As we have data for the actual change in equity value from year to year this can be compared to the theoretical value calculated by taking the CEO's combined portfolio delta and multiplying it with the return for the share in the following year. Thereby, we get the theoretical change in portfolio value based on the delta at the beginning of the year for the years 2005-2010. By doing so we can test the actual reliability of the measure as a forward-looking measure when CEOs are allowed to trade in their portfolio.

As the CEO's portfolio delta includes both stocks and options it will to some degree be a linear approximation of a relationship that is truly convex, meaning it will give the best approximations in the years with small movements in the share index. The degree of convexity will depend on

several factors including the composition of the portfolio, the larger the amount of options compared to stocks, and the more convex the combined portfolio will be. As the delta assumes the change in value to follow a linear relation we will expect that the theoretical delta value will overstate the losses when the share falls and underestimate the gains when the share increases. This bias will be most apparent in years with large fluctuations and when the option portfolio is at the money (see figure 3.1). In cases where the option portfolio is far into- or out of the money and the delta becomes closer to 1 or 0 respectively the linear approximation will be more accurate.

When performing the analysis we get mixed results (see table 6.11). In years 2007-2009 the expectations are followed and especially in 2008 where share prices fell drastically the differences stand out, as we would expect. In the years 2005-2006 and 2010 the theoretical values are higher than the actual values. Possible explanations of the deviation is that the actual values include adjustments for options exercised and sold, options granted, stocks granted, stock transactions, and dividends received. These adjustments could potentially all affect the differences in values. For the years 2005-2006 and 2010 it seems that the profits gained as a result of selling stocks and exercised options outweighs the value of new grants and dividends.

Category (DKKm)	2005	2006	2007	2008	2009	2010
Δ Theoretical value (avg.)	3.92	4.04	0.68	-10.39	0.76	2.34
Δ Actual value (avg. stock+option)	3.30	2.85	1.77	-5.15	1.38	2.23

Table 6.11

Under normal circumstances it would be possible to adjust the issue of deltas lacking accurateness for large share movements with the gamma measure, which measures the rate of change in delta with respect to changes in the underlying share price. In order to reach the gamma function it would be necessary to take the first derivative of delta with respect to changes in the share price or equivalently take the second derivative of the value function with respect to changes in the underlying share price. As we consider this out of scope for this thesis the options will not be pursued any further.

Overall, we can conclude that while the delta measure gives some indication of incentives we should be careful using it as a sole indicator for CEO wealth change in relation to large share price movements or for computing a theoretical value of equity change over a period of the year

as this can be heavily misleading. It does however highlight some important issues that together with the results from our regressions will be included in our discussion in section 7.3.1.

6.5. Summary

Before going on to the discussion and implications of our findings, we find it necessary to recoup the answer to all our hypotheses in order to give reader a better overview:

#	Hypotheses		Comment
1a	*We expect to see an increase in level of flow compensation in the period from 2004-2007 before the impact of the financial crisis*	✓	CAGR over the entire period 2004-2010 is 7% on average
1b	*We expect equity-based compensation to increase as a percentage of total flow compensation between 2004 and 2010*	✓	Equity-based comp. has increased from 6.4% in 2004 to 11.5% in 2010 on average
1c	*Level of flow compensation is significantly related to firm size*	✓	A 1% increase in market Cap leads to a 0.34% increase in CEO flow compensation
1d	*Considering total wealth change instead of flow compensation will yield widely different conclusions about the level of pay*	✓	In 2008 a CEO on average received 5.2m DKK in flow compensation, though his average wealth change was only 0.2m DKK
2a	*We expect to find a significant relationship between pay and performance, though not as strong as in the US*	✓	A 1% increase in firm value leads to a 0.48% increase in CEO compensation
2b	*We expect that changes in the value of stocks drive the majority of the pay-performance relationship*	×	Changes in value of options drive 70% of the pay-performance relationship
2c	*We expect to see no relationship between pay and relative performance in Denmark*	✓	Results are insignificant using both equity at stake and elasticity
2d	*Size is expected to have a negative effect on the sensitivity between pay and performance*	×	Size is positively related to strength of pay-performance
2e	*Financial firms and high growth industries have the highest pay-performance relationship*	×	No industry effects are found significant

Table 6.12

7. DISCUSSION AND IMPLICATIONS

At this point we have gone through all of our results and tested all nine hypotheses established in our analysis. The results produce a number of implications that will be addressed in the following section. Since many of the hypotheses are interrelated and some raises numerous issues the structure of this section will be less rigid than the previous. We have chosen to divide it into five sections. The first will deal with the level and structure of flow compensation, and thereby incorporate hypotheses 1a, 1b, and 1c. The second section will discuss the issue revolving wealth change as opposed to flow compensation and draw on findings from hypothesis 2a. The third section focuses on the pay-performance relationship in Denmark incorporating hypotheses 2a and 2b. Fourth we will discuss the lack of relationship between pay and relative performance, namely hypothesis 2c. The last section will deal with our findings concerning what factors have an influence on the strength of the pay-performance relationship.

7.1. Level and structure of flow compensation

Our results from hypothesis 1a clearly states that flow compensation for Danish CEO have been increasing for the last seven years (with the sole exceptions of 2008). We see two possible reasons for this development. Firstly, Murphy (1990) argues that increasing globalization is a driving factor behind the convergence of CEO compensation levels across countries. With the increased mobility of the work force especially on executive levels this will reduce the compensation gaps observed across the world. As the globalization trend is likely to continue and CEO remuneration in Danish firms still is low compared to international standards, we expect the international demand for managerial talent to continuously drive the growth of executive compensation in the coming years. Secondly, it can also be argued that the increasing levels of compensation can be attributed to CEOs having greater influence over the compensation process. Among the large firms the "community" of CEOs and board members in Denmark is rather small and intertwined meaning that the boards of directors in several cases are CEOs of other large firms. For example Eivind Kolding, Mats Jansson, Niels B. Christiansen all serve on the board of directors for Danske Bank while being respective members of the executive management group of AP Moeller Maersk, SAS (former), and Danfoss.

In hypothesis 1b we find that the level of equity-based compensation has increased as a percentage of flow compensation. This may be in fact highly related to our first finding, since previous research has indicated that the increase in the use of options has been prevalent for two possible reasons. One that boards are increasingly influenced by LBO specialists (Henry Kravis) i.e. private equity funds because they want to increase the pay-performance relationship Hall & Liebmann (1998). Second, boards want to pay CEO's more in order to attract managerial talent and option grants are a less visible way to do so in comparison to using salary and bonuses (Hall & Liebmann, 1998; Buck et al, 2003). This is an important element as public attention has increased towards higher levels of total flow compensation (Lassen & Ryskov, 2011). Hall & Liebmann (1998) point out that if the latter is the case boards may have increased incentive levels for the wrong reason. If firms systematical wish to understate the true level of remuneration given to executives there might also be a tendency to deliberately underreport the value of options granted. Findings show that while this has been the case in the US there is no sign of deliberate underreporting in Denmark (Bechmann & Hjortshøj, 2009). If this is the case it seems that the increase in the use of options can be primarily related to the first reason, which is positive for the Danish firms.

In hypothesis 1c we find that flow compensation is positively related to size. This again has been subject to much research (Conyon et al. 2011), and the implications can be extensive. Some argue that flow compensation naturally has to increase with size of the firm due to the complexity of the job at hand, which of course must be respected to a certain degree. That being said it still poses a major issue if this is a motivational factor for a CEO to engage in empire building and inefficient corporate mergers and acquisitions, simply to be able to justify a higher pay and not due to increasing the value of the firm. This however only enforces the need to focus on pay-performance when designing compensation packages, and not simply letting the CEO use his position as the head of a large firm to justify a high salary. By shifting parts of the fixed salary to equity-based compensation, shareholders ensure that the CEO will only earn a high salary if value is added to the company. In short high levels of CEO compensation is okay as long it is earned on the basis of CEO performance and not granted automatically.

7.2. CEO wealth change as opposed to total flow compensation

In the introduction we highlighted a lack of insight in the public debate about the nature of CEO compensation. Namely we found it misleading only to focus on flow compensation and not wealth change. Having conducted a full literature review we realized that the research community has not fully recognized the importance of CEO wealth change either as the appropriate measure of pay. This point was already highlighted by Hall & Liebmann (1998) many years ago as measuring pay including only total flow compensation underestimates the true sensitivity between pay and performance. Decades later we (unfortunately) can conclude that for Europe the measure is still not widely used. The examination of the literature shows that only a scarce amount of research papers exists. This is highly problematic as one cannot expect the general public to adopt the interpretation either then.

An example of the problems it imposes is the criticism in the public debate that CEOs have earned high wages in years of economic downturn, where people have been laid off. If one considers our results from 2008 the average loss on stocks and options for a Danish CEO was 5.2 million DKK constituting 96 percent of the average flow compensation for the same year. By omitting such factors we find that overall the debate gives a misleading picture of the actual pay levels. The other main issue is that by focusing solely on flow compensation the true relationship between pay and performance will be understated, which is a problem for results reported on many European countries. An example of this is Conyon et al (2011) who report an average pay-performance elasticity measure for Europe of 0.117, which is extremely low when compared to any other study considering wealth change (including our result of 0.48).

One way to increase the public awareness about the actual wealth change of the CEOs is to increase the information available regarding equity-based compensation. Chairman of the Danish Shareholder Association[39] Niels Mengel proposes that the annual report should include a sensitivity analysis of the values of an option program for different movements in the share price (P1 Business, 2011). He argues that it would help the small shareholders make an educated decision about whether or not to approve the executive remuneration in the company. Down the same line, we suggest a somewhat alternative approach to increasing the awareness about the equity-based compensation programs. Instead of disclosing only a sensitivity analysis (we do not

[39] Dansk Aktionærforening

say this cannot also be done), an actual overview of the development in the value of the program over the years should be disclosed. This would state the exact wealth change of the CEO from the option program. In 2008 shareholders would then realize how much money the CEO actually lost. In good years on the contrary, when large amounts are earned one may think it will cause outcries, however we see it as an opportunity for the company to actually communicate their focus on pay-performance compensation. Instead of solely stating that the CEO earned XX on his options portfolio over the year, this number can be held up against the increase in firm value that has occurred over the same period. By doing so we believe that it would add more dimensions to the debate, and hopefully inspire the media to focus on CEO compensation in a context instead of simply writing about large cash-ins as we refer to in our introduction.

7.3. Pay-performance sensitivity in Denmark

In hypothesis 2a we establish that a relationship does exist in Denmark. The overall sensitivity level we report though is extremely low, and in the terminology of Jensen & Murphy (1990) and Hall & Liebmann (1998) the Danish CEOs are indeed paid like bureaucrats. Considering our findings in relation to the option grants in Sweden (see Conyon et al 2011) it seems that both countries have lower than average sensitivities compared to Europe[40]. Given the results one will expect classical principle-agents issues to be more profound in Danish firms compared to other countries. This could be issues such as empire building through mergers and acquisitions, excessive corporate spending and the extraction of private benefits, the pursuance of pet projects etc. Another implication of the low pay-performance relationship is that in general executives are less motivated to perform since they seem to be gaining little from their increased efforts. This also includes their willingness in taking high risks, as there is no personal benefit involved with excessive firm gains. Accordingly, the main concern of the CEO will be to keep his current position rather than outperform the market and as a consequence it will not be in his interest to take on any high-risk project where the potential outcome could be severe (or phenomenal).

We have focused on public Danish firms in our study. If instead you consider firms owned by private equity (PE) funds the picture would look radically different. PE firms are known for their ability to engage in active ownership and optimize companies in order to sell them on and make a

[40] Notice that these are indicative as Conyon et al (2011) does not compute the actual sensitivity measures for wealth change that we do

profit. One of the cornerstones of this model is to motivate the management to perform. Their basic reasoning is that management should co-invest in the venture as a sign of their faith in the venture and that they are willing to perform their best. When/if the PE fund successfully divests the company, the management is likely to earn a lucrative return on their investment if the company has fared well under their ownership; examples of this are mentioned in section 1.1.1. There are other factors affecting the performance of PE owned companies, but the fact that they have such a high focus on aligning incentives between owners and management further enhances our belief that it is a major area of improvement for many Danish firms. This is in particular the case for Small Cap companies which we will discuss in detail in section 7.5.

We highlight the need to improve the relationship between pay and performance. This is a vast area that we cannot cover in all its details, also because it is highly dependent on the individual firm, though some general implications should be taken into account when designing compensation packages. Throughout the report we stress the need for an alignment of CEO wealth change and firm value. This also means that in bad years, the CEO's personal economic circumstances must reflect those of the company. As a result, performance based compensation should be an integrated part of the overall compensation and not simply an addition to what they already receive in fixed pay. As we see it there are two ways to overcome this problem. The first is to follow the PE model and have CEOs co-invest in the company. This can be done by setting minimum targets for how many shares the CEO must own in the company while in position. This is in fact in place in some Danish companies, though maybe the levels will need to be increased in order to make an impact.

Second, if granting options, it can be done in a way where the CEO does not automatically get the options but has to invest part of his fixed salary in the option program. Using such an approach you mirror the co-investment made through stocks, while at the same time keeping the leverage effect of the options making it easier to reach a higher pay-performance relationship. The latter is accordingly to Tom Knutzen (CEO of Danisco) becoming increasingly popular in the Scandinavian countries, though something that yet has to be widely adopted in Denmark (P1 business, 2011).

7.3.1. Maintaining constant incentives

During our analysis an issue that stroked us was the change that occurred over the period in the pay-performance relationship. We just argued that the relationship in general is too weak in Denmark, though another issue is the inconsistency. As we state in our hypothesis 1b we expect equity-based compensation as a percentage of flow to increase over the period, and we confirm this hypothesis. On the same note one would expect the strength of the pay-performance relationship also to increase over the period which is also confirmed though the increase is not as significant as one could have expected. Our results highlight that during the financial crisis (in 2008) CEOs experienced large declines in the strength of the pay-performance relationship.

The issue of a declining pay-performance relationship can be ascribed to the nature of options that do not have a constant delta. Instead, as the options go far out of the money the delta moves towards zero. In general we find it troubling when there are large fluctuations in delta. This can distort the motivation of the CEO to perform at his peak, if he knows that it will not materialize in a personal gain. The obvious way to overcome this issue is to grant stocks instead of options, as they by definition have a constant delta equal to one. This will ensure the CEO is motivated throughout a period where share prices are low. In the US especially, but also in the UK, RSUs have become increasingly prevalent (Frydman & Jenter, 2011). An interesting fact is that they do not necessary replace options completely but are instead given as part of a portfolio of equity based compensation. By doing so you create a minimum incentive level for the CEO. In Denmark RSUs has also received increased attention especially from the large accounting firms claiming that RSUs have become increasingly popular among Danish firms (PwC, 2011). Our analysis though has shown that this is not the case since only seven companies out of 66 examined use this form of compensation. Instead options continue to be the preferred equity based pay despite the downside of a fluctuating delta. One reason for this may be that companies view options as a “cheap” way of incentivizing its CEO. This of course is an illusion since the opportunity costs of granting an option as compared to selling it in the market should be recognized. What does make sense is the fact that options are leveraged and despite having a lower delta than stocks when granted (approximating 0.5 if granted at the money) it is cheaper to reach a certain level of pay-performance sensitivity using options compared to stocks. As a result it is reasonable to consider using a mix of RSUs and options.

7.4. Relative performance evaluation

As previously mentioned our results show that Danish CEOs lost large amounts on their equity portfolio during 2008. It is also apparent that much of the value lost has been regained in 2009-2010 due to the general recovery of the stock market. On top of this, new grants were given to CEOs in 2008 and 2009 while share prices were low and thereby also exercise prices on options were low meaning they could potentially be an extremely profitable event for some CEOs, as they were able to receive option grants that have become far more lucrative than in a more stable market. This short timeframe illustrates perfectly the problem of measuring performance on an absolute level. CEOs are "punished" for things that are out of their control, and in turn they receive windfall gains when they are operating in a bull market.

As explained in section 3.2.2.2 the optimal efficient contracts should ensure that the CEO is rewarded for the performance of which he has control (abnormal performance) and be isolated from macroeconomic shocks and share price movements beyond his control (Holmstrom 1979). The results we report show that there is no relationship between relative performance and CEO wealth change, which from a shareholder's point of view is highly disturbing. The results are not surprising however, as the majority of CEOs are not evaluated based on relative performance but on the basis of total performance, i.e. with stocks and options linked to the firm's share price without the inclusion of a relative component. Hall & Liebmann (1998) pointed out that this was an area where room existed for improvement of the contracting process between firms and the CEO. Considering the results we find this has clearly not been an area that has received much attention among the Danish firms in the structuring of incentive programs for CEOs.

At the moment in Denmark there is little focus on incentivizing CEO's according to their relative performance. In the latest set of guidelines published in April 2010 by the committee for good corporate governance in Denmark the issue is not mentioned and given that almost all Danish firms follow these guidelines this is disturbing. Especially since the guidelines are recommendations and not mandatory and as such should reflect best practice – unfortunately this is not the case at the moment. Marianne Philip, Partner at Kromann & Reumert and vice-chairman of The Committee on Corporate Governance in Denmark, argues that using relative performance measures is simply not feasible in practice and that to her knowledge it is not

observed in other countries either (Philip, 2011)[41]. We acknowledge that for some firms the problem of feasibility can be a valid argument. For example considerations regarding the appropriate peer group or index that should be used as benchmark could complicate the implementation. In some cases it might even be hard to find firms that operate within the same industry and geography as the firm. However, in other cases this definitely is possible as for example in the Danish banking sector where a range of similar sized banks with equal exposure exists. Alternatively the overall market can be used as the benchmark, which would remove macroeconomic trends. Philip (2011) highlights signaling issues as another pitfall of relative performance. An example could be a CEO who outperforms his peers or the market during the financial crisis by "only" producing a 30% negative return whereas the market overall drops 40%. In such a case the CEO will be rewarded for his performance while the shareholders still have lost a great deal of money. From a rational investment point of view the shareholders should appreciate the relative good performance and be willing to reward the CEO, though in practice this may not be the case. Minister of the Treasury; Claus Hjort Frederiksen and Steen Nielsen, Head of Compensation Policy in Danish Industry[42] (cited in Lassen & Ruskov, 2011) support this and both states that CEO must live up to standards they impose on their employees, i.e. when laying off people and cutting wages they must also be willing to cut their own pay.

In addition, it has been suggested by Murphy (1998) that the reason why relative performance measures are not observed in practice is due to a tacit collusive agreement between firms. The reason this is observed could be due to managers exploiting their power over the compensation process. It can be difficult to attract and maintain CEO's using a relative performance measure as the market consensus for long-term incentives is based on absolute performance. If the assessment from the CEO's point of view is that he can be rewarded for a general market upswing elsewhere he may be unlikely to choose a firm with a relative based incentive scheme. In this case it is important to highlight that the effect works both ways, and thereby also ensures that a CEO is not punished for the general market movements such as the market collapse in relation to the global financial crisis. Furthermore shareholders should be willing to give a larger share of any abnormal return created compared to absolute return, i.e. creating a stronger pay to

[41] Philip (2011) emphasized that the committee do make implicit recommendations about how the remuneration packages should be structured, but what they should achieve, namely long run sustainable value creation.
[42] Lønpolitisk chef i Dansk Industri

relative performance link than the link that exists today between pay and relative performance. On the basis of this, using relative performance could in practice ensure that the "right" type of CEO's are attracted, meaning only those who actually believe they can add abnormal value while CEOs with lower confidence in their own abilities will stay away. The potential risk is that CEO's will become extremely profound of taking excessive risks in order to boost performance and thereby share prices in the short run, which emphasizes the need for structuring the relative incentive plans with a long-term dimension.

7.5. Factors affecting pay-performance

In trying to determine what factors have a significant effect on the pay-performance sensitivity our only significant result was that size plays a vital role. In short the larger companies in Denmark are simply better at structuring their compensation packages in a way that motivates the CEO.

Despite this being against previous findings from the US and has led us to reject our initial hypothesis (2d), it is in our opinion a natural pattern, which can be explained by a number of possible factors related to firm size and level of global activities. First, it is fair to assume that the CEOs of the largest Danish companies are of a higher caliber than their colleagues in smaller companies and they are exposed to international operations on a larger scale. Hence one would expect that in order to retain these talented people firms must use compensation packages that can compete on an international level both in terms of level and structure, which can explain the widespread usage of options. This argument is confirmed by the chairman of Carlsberg; Povl Krogsgaard-Larsen (cited in Lassen & Ruskov, 2011) who says that in order to find people who are talented and willing to put in the necessary work, Danish firms need to match international compensation levels. Another effect arising from the level of international activities is that regional managers from abroad may help push the usage of options. If a large Danish company has significant operations in the US it can be necessary to use options in the subsidiary since it is common practice in the US, thus leading to a spillover effect on the CEO for the Danish headquarter (Tom Knutzen, cited in P1 Business, 2011).

The most important implication of our finding is however not necessarily how well large company CEOs are motivated (though we still see room for improvement there as well) but more the fact that there is no clear evidence of a pay-performance relationship within the Small Cap

companies. This we find very disturbing since agency costs also arise in small firms. If looking at our Small Cap sample it is clear that a significant number namely in 52% of our observations the CEO does not own any options. On the contrary in only 12% of our observations the CEO does not own any stocks. From figure 6.17 it is clear that wealth change from options and stocks are rather similar indicating that most Small Cap CEOs shareholdings are small without a real incentive effect. Instead it seems that the shareholdings are held in order to give a signaling effect to the market as opposed to increasing the exposure to the company's performance. One possible reason for why we do not see more incentive based compensation could be that the Small Cap CEOs are risk adverse and therefore reluctant to receive it. Compared to Large Cap CEOs their absolute flow payments are considerably lower making them less wealthy on average, and therefore presumably also less willingly to risk large amounts on a single firm.

So on one hand the CEOs may be reluctant to accept performance based compensation. On the other hand the firms may also be sluggish in their efforts to introduce it. We base this on the notion that organizational issues such as corporate governance can be perceived as time-consuming and expensive for small companies to implement. As a result, little focus is directed at how the interests of the shareholders are aligned with those of the boards of directors and the CEO. This however is an invalid reason for neglecting these mechanisms as they are extremely valuable in ensuring the health of the firm. Looking at the performance of the Small Cap index as opposed to Mid and Large Cap over the period one could be tempted to ask the question; if the lacking pay-performance relationship may be part of the explanation for their underperformance over the period?[43]

One note of caution when considering pay-performance in small companies is the issue of illiquid shares. In some smaller companies it may be that the stock price does not necessarily represent the true value of the company but instead is affected by the lack of trading in the share. In such a case it may not be appropriate to motivate the CEO using equity-based compensation. An alternative way of improving the pay-performance sensitivity could be to rely on the second best thing, which is a set of accounting measures.

[43] See appendix 10.4 for the performance of the three indices over the period of the study.

8. CONCLUSION

8.1. Summary

The motivational background for this study is driven by the improved information disclosure from Danish firms and a lacking attention to detail by the general public debate about executive remuneration. In order to summarize the main findings we will go through the following sections: the research question, the theoretical analysis, the empirical analysis, the results, and finally the implications.

The overall objective of this study is to investigate the remuneration of CEOs in Danish firms over the period 2004 to 2010 focusing on the overall research question: *Is there a relationship between CEO pay and performance in Denmark?* As a part of answering this research question the analysis is divided into two parts. The first part is descriptive and focuses on mapping the current trends and practices within remuneration. In the second and core part of the analysis the relationship between pay and performance is examined.

In the theoretical analysis we establish the basic idea behind principal-agent theory and how compensation can act as a means to overcoming the misalignment of interest between the principal and agent. In short monitoring costs in public listed firms are high and therefore the most efficient way to align interest is by motivating and rewarding through variable compensation. Having established the general motivation behind variable pay we continue by reviewing earlier studies in order to arrive at an effective way of quantifying managerial incentives and the performance of firms. Based on two cornerstone studies within the pay-performance literature by Jensen & Murphy (1990) and Hall & Liebman (1998), we emphasize the importance of measuring pay as the CEO's total wealth change. By this we mean total flow payments (the sum of salary, bonus, other benefits, stock grants, and option grants) plus the change in the value of stocks and options. In order to quantify the performance of firms we also follow the established literature where there is a general consensus that stock return is the appropriate measure. When combining managerial incentives with firm performance we arrive at four general accepted ways of measuring CEO incentives: The elasticity measure, the equity at stake measure, the Jensen & Murphy statistic, and the delta of the CEOs combined portfolio.

In the empirical analysis we find that the executive remuneration in the US far exceeds that of any other country. The difference is primarily driven by higher equity based pay in the form of restricted stock units and options. During the last decade however, the year-on-year growth rates have been higher for countries outside the US indicating that other nations including a number of European countries are "catching up". Based on the review it is also a widely accepted fact that total flow compensation increases with firm size. In terms of testing the pay-performance relationship there are a number of studies, which set out to do so however only a very limited number who measure pay as total CEO wealth change. Unfortunately, and even despite it being highlighted as early as in Jensen & Murphy (1990) most of the studies continue to measure CEO pay as total flow payments. The findings for the US show the strongest relationships between pay and performance whereas results for the UK and Australia are less strong however still positive. Total flow compensation accounts for an insignificant amount of the sensitivity and over the years options have overtaken stocks as the primary driver of the relationship. Other studies focus on the relationship between pay and relative performance in order to show whether CEOs are rewarded for outperforming their competitors. Results are a bit mixed but generally there seems to be no real pattern. In terms of the factors affecting the sensitivity between pay and performance studies in the US have highlighted that firms in the financial industry as well as high growth firms tend to have higher sensitivities, while size seems to have a negative effect.

As a part of the empirical analysis we construct nine hypotheses which we test based on our results. In response to hypotheses we find: 1a) is accepted as total flow compensation has increased over the period between 2004 and 2010 with CAGR of 7%. 1b) is accepted as equity compensation as a percentage of total flow compensation has increased from 6.4% in 2004 to 11.5% in 2010. 1c) is accepted as firm size is related to total flow compensation with a 1% increase in market cap leading to 0.34% increase CEO flow compensation. 1d) is accepted as measuring pay as total wealth change instead of as total flow compensation yields widely different results. For example in 2008 a CEO on average received 5.2m DKK in flow compensation, though his average wealth change was only 0.2m DKK. 2a) is accepted as significant relationship between pay and performance exists with a 1% increase in firm value leading to 0.48% in CEO wealth. 2b) in contrast to our expectation about stocks driving the relationship between pay and performance we find that the value of options drive 70% of the relationship and thus we reject this hypothesis. 2c) is accepted as we find no relationship between

pay and relative performance using both the equity at stake and the elasticity measures. 2d) is rejected as we find that firm size is in fact positively related to the sensitivity between pay and performance. 2e) is rejected as our results show that none of the industry effects are significant in affecting the sensitivity between pay and performance.

These results have certain implications for the Danish firms and surrounding stakeholders, which deserve to be highlighted. Given that firm size has a positive impact on total flow compensation it is likely that the CEOs will have too much focus on growing the size of the firm through empire building and inefficient mergers and acquisitions.

We also highlight the need to adopt wealth change as a more sophisticated measure of CEO compensation. One way to do this is by firms increasing the information level about changes in the value of the CEOs portfolio over the years.

The low pay-performance relationship observed is alarming due to increased chances of observing agency problems in Danish firms, and thus it must be addressed by Danish firms. In their assessment of the compensation structure focus should be on having the CEO co-investing in the company in order to make sure that variable pay is not simply given on top of fixed salary as an additional perk. In addition we highlight other factors that must be considered when designing the compensation structure. First we discuss the issue of keeping incentive levels constant across time, also during a period where financial markets fall and all share prices suffer. As a consequence of option programs going far out of the money we find that certain remedies exist to overcome this problem. One solution can be to grant restricted stock units instead of options as this will ensure a stable delta and thereby also more stabile incentives. Secondly, we conclude that firms must address the lack of relative performance evaluation in their incentive structure since all theory on the matter argues that it is a superior measure compared to absolute performance as it both prevents CEOs from receiving windfall gains as well as safeguarding them from taking losses that are out of their control.

8.2. Suggestions for future research

The compensation literature consists of a wide range of different topics. This paper is by no means exhaustive in dealing with all these as the topic of interest has been rather exclusive. As a consequence of our findings and the general process of investigation several new areas have come to attention. In the following we will outline some of the topics, which could serve as potential areas for future research.

8.2.1. Low pay-performance relationship

Overall we establish that the Danish firms, in general and in comparison to firms in other countries, have a quite low relationship between pay and performance. In this paper we have briefly touched upon some of the theoretical implications, though a further investigation of these could be relevant.

8.2.1.1. Higher principal-agency costs

Given the relationship we find between pay and performance there should in theory be high agency costs in Denmark. Whether this is the case in practice is a completely different discussion and further empirical research is necessary in order to reach a useful conclusion. If it turns out that there are no signs of higher agency costs it would be interesting to examine whether there are some institutional or infrastructural differences, which affect the observed principal-agent relationship thereby making it less necessary with a high pay-performance relationship.

8.2.1.2. Lower risk taking

Another possible effect of having a low sensitivity between pay and performance is the influence it has on risk taking by the CEO. Bechmann & Raaballe (2009) have previously showed that for Danish banks there is only limited evidence that larger option incentives lead to more risk taking. However, it could be interesting to investigate this relationship across all types of firms in order to determine if a similar relationship can be observed.

8.2.2. Improved information quality

One of the key facilitators of this study is the improved quality of information, which has made it possible to collect exhaustive remuneration data for a number of firms. Still, we limit our dataset from 192 to 66 firms indicating that the information quality is still far from adequate if the aim is to achieve the complete picture of all publicly listed Danish firms. As we have showed the trend

is going toward increased transparency meaning it will be possible down the line to collect data, which more fully reflects the whole population. Given the structural differences in relation to option grants that apparently exist between the results we have found and the earlier results by Bechmann (2007) (see section 6.1.2.2) the new information will help spread some light on these differences.

8.2.3. Regression with multiple variables

As already argued we were only able to establish a significant relationship between size and pay-performance strength. This we argue can partly be attributed to the nature of our dataset. Future research could focus on including all listed companies and try for the latest year in order to try and make inferences about which firm characteristics influence the relationship between pay and performance.

8.2.4. Relative performance evaluation

It has been established that CEOs are not rewarded for performing relatively better than the market index, and that this is an area where there is room for improving the contracting process. Given the importance of this aspect and the fact that in general it appears to have been ignored by firms, we find it interesting to conduct a further investigation of this area. One approach could be to conduct a qualitative study where interviews with board members of the Danish firms should help determine whether the relative performance evaluation is as far away from becoming reality as it appears.

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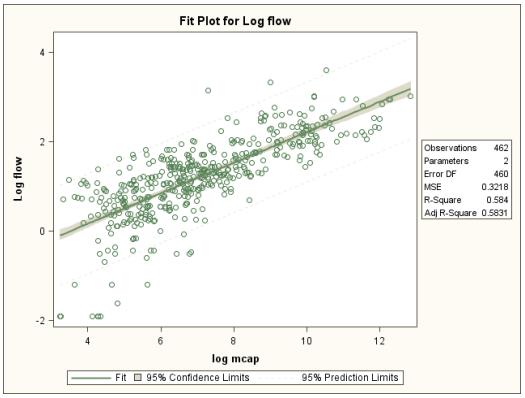
10. APPENDIX

10.1. Level of flow compensation as a function of size

10.1.1. Log-log

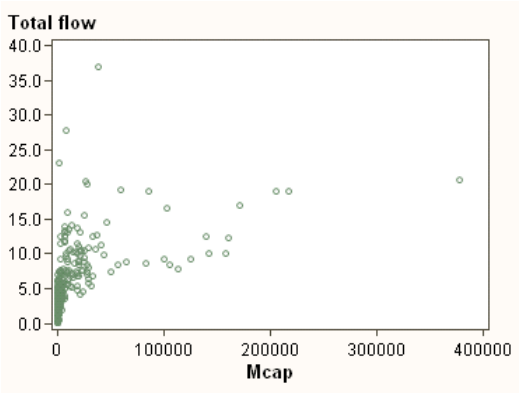
Taking log both to market cap and total flow compensation gives the best functional form for describing the relationship. This is apparent from the scatter plot as this form gives the closest approximation to a linear relationship.



10.1.1.1.

10.1.2. Lin- Lin

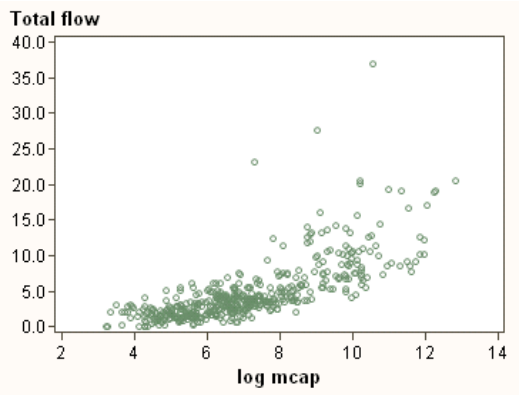
As apparent from the scatter-plot there seems to be little linear relation between total flow compensation and market cap when they are regressed against each other directly.



10.1.2.1.

10.1.3. Lin-log

From the scatter plot it is clear that this relatively well describes the relation. The intuition behind a Lin-Log relation is that total flow compensation increases with firm size though at a diminishing rate. The implications are that a similar increase in size in absolute terms results in larger increases in flow compensation for small firms compared to large firms. The explanatory variable is highly significant and the R-square is 0.54.



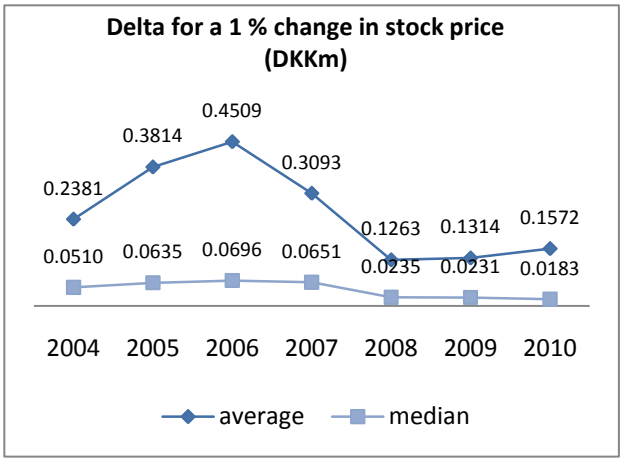
10.2. Excluded observations due to principal and agent being similar

Excluding those with principal equal to agent			
Nr	Firm	Name	Years
1	Asgaard Group	Søren Stensdal	all
2	Brdr A&O Johansen	Niels A Johansen	all
3	Arkil Holding	Niels Arkil	all
4	Dantax	John Peter Jensen	all
5	Flugger	Ulf Schack	04-06
6	Thrane	Lars Thrane	07
7	Sjælsø	Ib Henrik Rønje	04-06
8	RTX	Jørgen Elbæk	04-05
9	Migatronic	Peter Roed	all
10	Intermail	Johannes Madsen-Mygdal	all
11	Harboe	Bernhard Griese	all
12	F.E. Boarding	Hans Therp	all
13	Netop Solutions	Peter Nielsen	04-07
14	Lastas	Anders Kristoffer Larsen	all

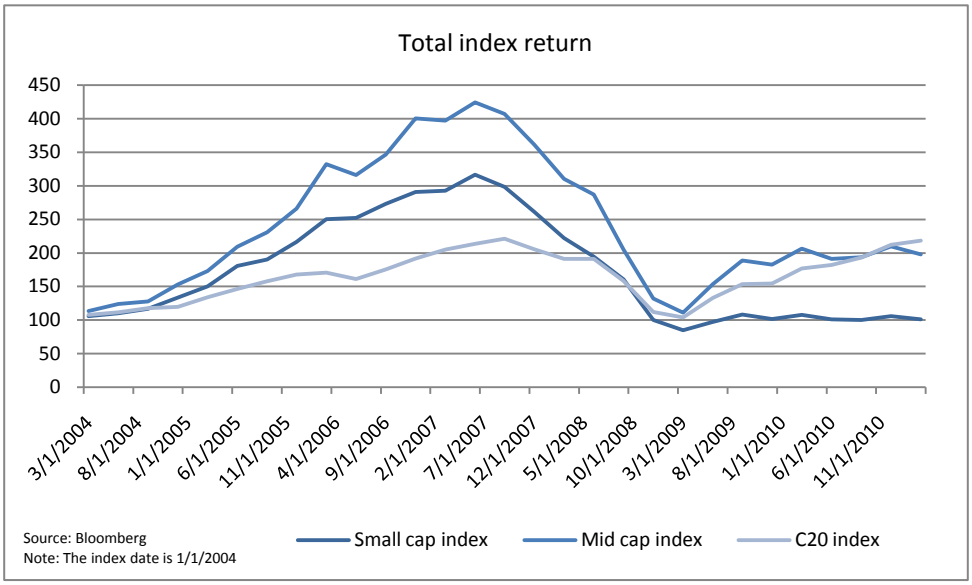
10.3. Exclusion from sample due to lack of information

Firms not included in our sample because of lacking ownership info	Estimated option grant influence
Ebh bank	High
Forstædernes Bank	
Hedegaard	
ISS	
Keops	
Lokalbanken i Nordsjælland	
Maconomy	
Pharmexa	
Torsana	
Nordicom	
TopoTarget	
Østasiatiske Kompagni	
Sparekassen Himmerland	
TORM	
Spar Nord Bank	
Schouw & Co.	
NeuroSearch	
Rockwool International B	
Topdanmark	
Tryg A/S	
Bang & Olufsen	
Bavarian Nordic	
Genmab	
Danware	Limited
Denka	
Roskilde Bank	
PARKEN Sport & Entertainment	
Danionics	
Columbus IT Partner	
Per Aarsleff B (2.7m)	
Ringkjøbing Landbobank	
G4S plc	

10.4. Delta for the entire sample including the 14 outliers



10.5. Index return over the period of the study



10.6. Interview with Lisbeth la Cour

Lisbeth la Cour was our econometrics teacher during the first semester of Can.Merc.AEF, and as a result we found it natural to consult her for advice regarding our econometric analysis. No formal interview was conducted but she gave us many inputs and guidance. We use her as a reference for one specific point regarding autocorrelation in panel datasets, and we have her consent over email which is attached below:

Google Mail

Joel Madsen <joelamadsen@googlemail.com>

Source for our thesis
2 meddelelser

Joel Madsen <joelamadsen@googlemail.com> **1. jul. 2011 11.28**
Til: llc.eco@cbs.dk

Dear Lisbeth

We thank you once again for your assistance and guidance in the econometric analysis of our thesis about pay-performance relationship in Danish firms.

On the basis of our discussions and the comments you made, we would like to use you as a source of reference in our thesis if you do not mind.

We would therefore like you to read through the following short paragraphs from our thesis, which is where we would like to use you as our point of reference. In short it is about what you said relating to autocorrelation in panel datasets.

"Given that we have 66 firms and only 6 years the issues arising from heteroscedastic distribution of the error terms is likely to be more severe than those arising from autocorrelation (la Cour, 2011)."
...

"The problem when dealing with a panel dataset is that the normal tests for detection of autocorrelation becomes invalid (la Cour, 2011). Together with the fact that we have only six years in our dataset the problem of autocorrelation is likely to be a minor issue and therefore we find it acceptable not to take any further steps."

We are looking forward to hear from you, and hope to receive your consent. Enjoy your summer.

Best Regards

Joel A. Madsen
Stud.merc.AEF
+45 2674 9924

Lisbeth La Cour <llc.eco@cbs.dk> **1. jul. 2011 11.32**
Til: Joel Madsen <joelamadsen@googlemail.com>

OK
Lisbeth

Lisbeth la Cour, PhD
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Copenhagen Business School
Porcelaenshaven 16A
DK2000 Frederiksberg
Denmark

Phone: +45 38152488
e-mail: llc.eco@cbs.dk

10.7. Interview with Marianne Philip

Marianne Philip is vice-chairman of the Committee on good corporate governance in Denmark and an acquaintance of one of the authors. Due to the relationship we had the opportunity to have an informal discussion about our findings. The thing we found most interesting to talk to her about was the lack of relative performance in the guidelines, which is the only point which we refer to. We have received her consent for using her as a source by email.

Google Mail

Joel Madsen <joelamadsen@googlemail.com>

Source of reference for our master thesis on executive pay in Danish listed companies

2 meddelelser

Joel Madsen <joelamadsen@googlemail.com> **6. jul. 2011 13.05**
Til: mp@kromannreumert.com

Hi Marianne

Thanks for our last chat and your inputs for our thesis. It is always a pleasure to get the view of a practitioner when we are only dealing with it from an academic viewpoint.

Since our conversation did not take the form of an interview, I would like to ask if we can quote you in our thesis. More specifically it is in regards to two points you made:

First, concerning the lack of relative performance measures in Danish firms, I believe your opinion was that it is simply not feasible for many firms to do so in practice. This is due to a number of reasons, where we highlight the difficulties in finding an appropriate peer group.

Second, is the issue of signal effects when using relative performance. I believe you said that it does not look good if a CEO earns large sums at times when shareholders are loosing money, despite a good relative performance.

To avoid any misunderstandings, I have attached the full section in which you are quoted below.

Best Regards

Joel A. Madsen
+45 2674 9924

"At the moment in Denmark there is little focus on incentivizing CEO's according to their relative performance. In the latest set of guidelines published in April 2010 by the committee for good corporate governance in Denmark the issue is not mentioned and given that almost all Danish firms follow these guidelines we find this disturbing. Especially since the guidelines are recommendations and not mandatory and as such should reflect best practice – unfortunately we find this not to be the case at the moment. Marianne Philip, Partner at Kromann & Reumert and member of The Committee on Corporate Governance in Denmark, argues that using relative performance measures is simply not feasible in practice and that it is not observed in other countries either (Philip, 2011). We acknowledge that for some firms the problem of feasibility is a valid argument. For example considerations regarding the appropriate peer group or index that should be used as benchmark could complicate the implementation. In some cases it might even be hard to find firms that operate within the same industry and geography as the firm. However, in other cases this definitely is possible as for example in the Danish banking sector where a range of similar sized banks with equal exposure exists. Alternatively the overall market can be used as the benchmark, which would remove macroeconomic trends. Philip (2011) highlights signaling issues as another pitfall of relative performance. An example could be a

CEO who outperforms his peers or the market during the financial crisis by "only" producing a 30% negative return whereas the market overall drops 40%. In such a case the CEO will be rewarded for his performance while the shareholders still have lost a great deal of money. From a rational investment point of view the shareholders should appreciate the relative good performance and be willing to reward the CEO, though in practice this may not be the case. Minister of the Treasury; Claus Hjort Frederiksen and Steen Nielsen, Head of Compensation Policy in Danish Industry[1] (cited in Lassen & Ruskov, 2011) support the view of Philip (2011) and both state that CEOs must live up to standards they impose on their employees, i.e. in times of economic hardship when laying off people and cutting wages they must also be willing to cut their own pay."

---

[1] Lønpolitisk chef i Dansk Industri

Marianne Philip <mp@kromannreumert.com> **7. jul. 2011 16.18**
Til: Joel Madsen <joelamadsen@googlemail.com>

Se mine kommentarer nedenfor. Ellers er det fint. Beklager forsinkelsen, men jeg har haft så travlt op til ferien. knus Marianne

Med venlig hilsen/Best regards

Marianne Philip

Partner, LL.M.

Dir. +45 38 77 44 44

Mob. +45 40 79 10 14

Kromann Reumert

Sundkrogsgade 5

DK-2100 Copenhagen

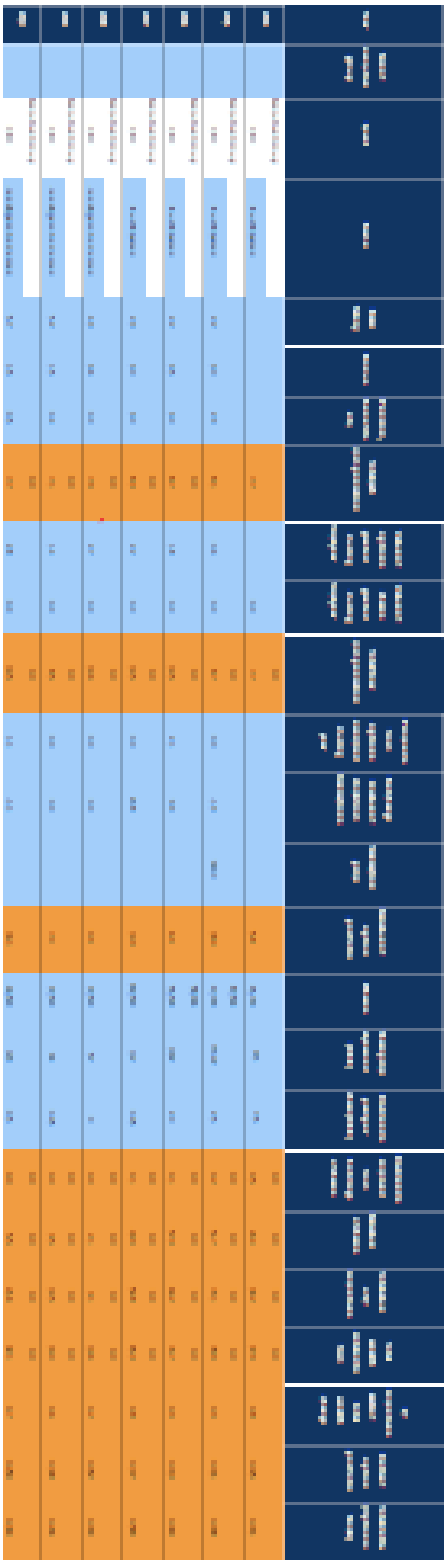
"At the moment in Denmark there is little focus on incentivizing CEO's according to their relative performance. In the latest set of guidelines published in April 2010 by the committee for good corporate governance in Denmark the issue is not mentioned and given that almost all Danish firms follow these guidelines we find this disturbing. Especially since the guidelines are recommendations and not mandatory and as such should reflect best practice – unfortunately we find this not to be the case at the moment. Marianne Philip, Partner at Kromann Reumert and vice-chairman of The Committee on Corporate Governance in Denmark, argues that using relative performance measures is simply not feasible in practice and that to her knowledge it is not observed in other countries either (Philip, 2011). [Her synes jeg der skal tilføjes at jeg sagde, at anbefalingerne ikke tager stilling til de detaljerede vilkår for hvordan aflønning skal ske, men feks anfører, at principperne for vederlæggelsen skal understøtte en langsigtet værdiskabelse for selskabet.]We acknowledge that for some firms the problem of feasibility is a valid argument. For example considerations regarding the appropriate peer group or index that should be used as benchmark could complicate the implementation. In some cases it might even be hard to find firms that operate within the same industry and geography as the firm. However, in other cases this definitely is possible as for example in the Danish banking sector where a range of similar sized banks with equal exposure exists. Alternatively the overall market can be used as the benchmark, which would remove macroeconomic trends. Philip (2011) highlights signaling issues as another pitfall of relative performance. An example could be a CEO who outperforms his peers or the market during the financial crisis by "only" producing a 30% negative return whereas the market overall drops 40%. In such a case the CEO will be rewarded for his performance while the shareholders still have lost a great deal of money. From a rational investment point of view the shareholders should appreciate the relative good performance and be willing to reward the CEO, though in practice this may not be the case. Minister of the Treasury; Claus Hjort Frederiksen and Steen Nielsen, Head of Compensation Policy in Danish Industry[1] (cited in Lassen & Ruskov, 2011) support the view of Philip (2011) and both state that CEOs must live up to standards they impose on their employees, i.e. in times of economic hardship when laying off people and cutting wages they must also be willing to cut their own pay."

---

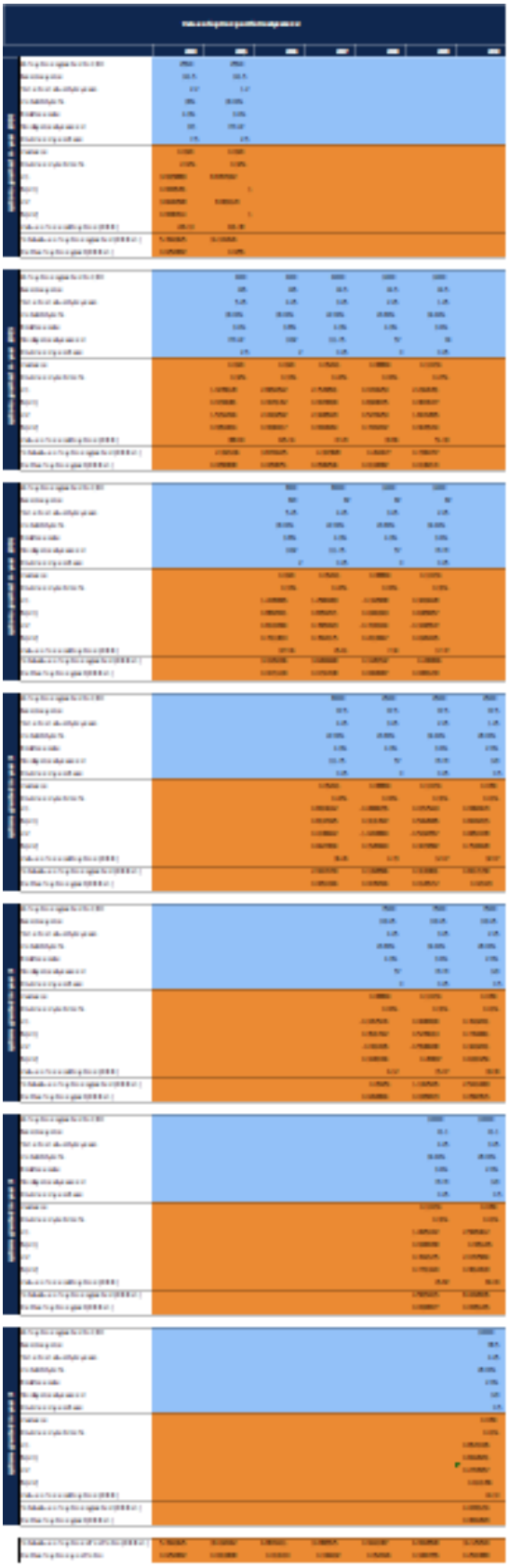
[1][1] Lønpolitisk chef i Dansk Industri

10.8. Example of datasheet for DSV A/S

10.8.1. Overview



10.8.2. Value of outstanding portfolio



10.8.3. Cash-in and option grants

Value of options at date granted							
Input	2004	2005	2006	2007	2008	2009	2010
#of options granted to CEO		6000	8000	80000	75000	100000	100000
Exercise price		445	820	97.5	103.25	41.1	98.5
Time to maturity in years		6	6	5	5	5	5
Volatility in %		18.00%	18.00%	22.90%	29.80%	34.60%	28.00%
Risk free rate	4.3%	3.4%	3.8%	4.3%	4.3%	3.6%	2.9%
Stock price at time of grant		445	820	97.5	103.25	41.1	98.5
Dividend per share (DKK)		2.5	2	0.25	0	0.25	0.5
Variance	0	0.0324	0.0324	0.052441	0.088804	0.119716	0.0784
Dividend yield in %	#DIV/0!	0.56%	0.24%	0.26%	0.00%	0.61%	0.51%
d1	#DIV/0!	0.60668448	0.70437766	0.65086566	0.65582823	0.58018387	0.50410442
N(d1)	#DIV/0!	0.72796984	0.75940139	0.74243399	0.74403268	0.71910468	0.692906
d2	#DIV/0!	0.16577633	0.26348951	0.13880609	-0.01052002	-0.19349565	-0.12199462
N(d2)	#DIV/0!	0.56583351	0.60390564	0.55519831	0.49580319	0.4232854	0.45145164
Value of one call option (DKK)	#DIV/0!	107.88	219.42	27.81	35.53	14.14	28.07
Total value of options granted (DKKm	#DIV/0!	0.64727955	1.75535758	2.22444556	2.66498729	1.41386322	2.80749743
Delta of option grant (DKKm)	#DIV/0!	0.00436782	0.00607521	0.05999467	0.05580245	0.07191047	0.0692906

10.9. Regression results

10.9.1. Overall relationship using pooled regression

10.9.1.1. Jensen & Muprhy

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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	289
Number of Observations Used	286
Number of Observations with Missing Values	3

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	5329.20143	5329.20143	120.41	<.0001
Error	284	12569	44.25855		
Corrected Total	285	17899			

Root MSE	6.65271	R-Square	0.2977
Dependent Mean	6.05233	Adj R-Sq	0.2953
Coeff Var	109.91982		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	5.52928	0.39626	13.95	<.0001	0.39704	13.93	<.0001
SH wealth created	1	0.00050681	0.00004619	10.97	<.0001	0.00008069	6.28	<.0001

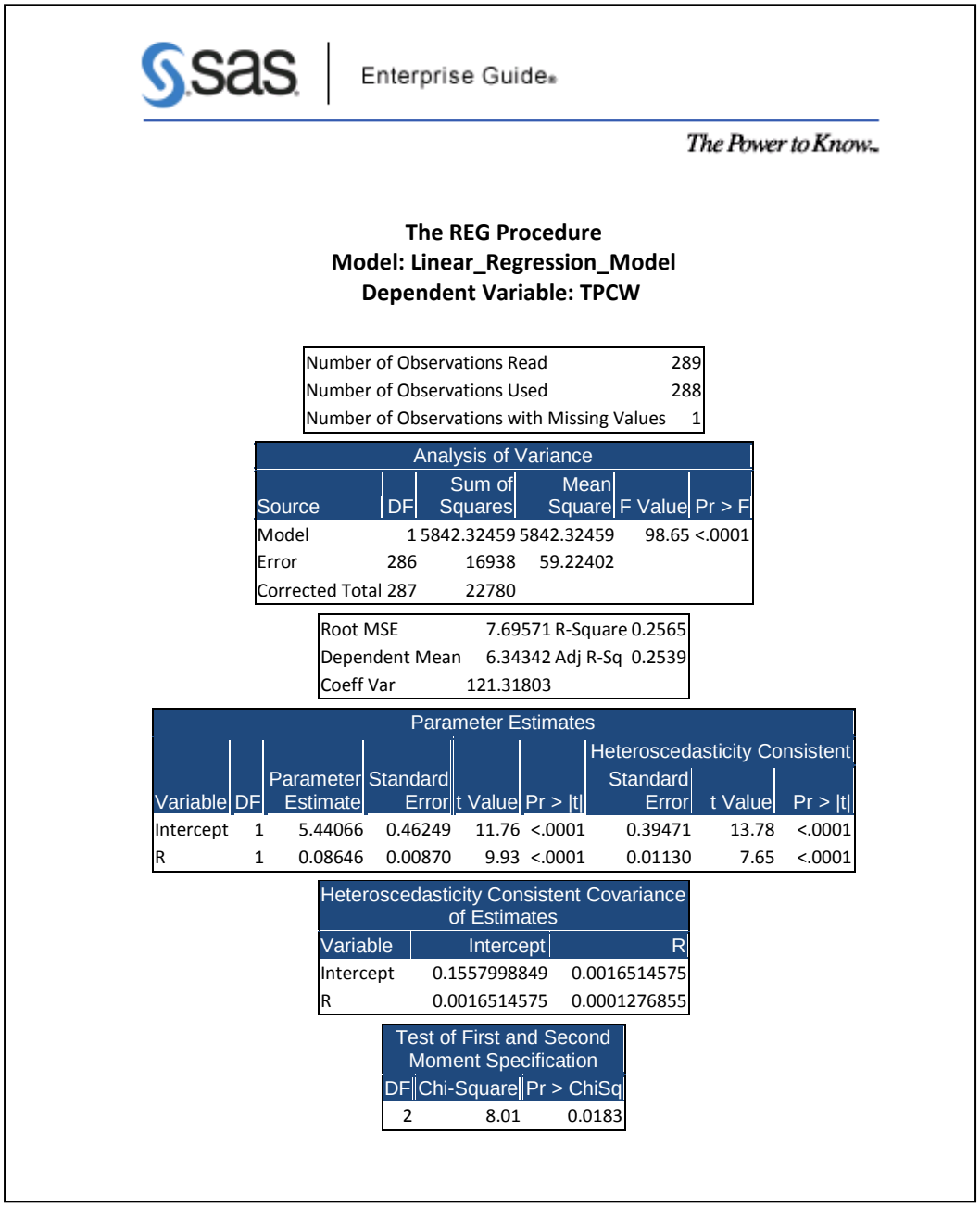
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	SH wealth created
Intercept	0.1576373672	-5.283047E-6
SH wealth created	-5.283047E-6	6.5113186E-9

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	12.37	0.0021

10.9.1.2. Equity at stake



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The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: TPCW

Number of Observations Read	289
Number of Observations Used	288
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	5842.32459	5842.32459	98.65	<.0001
Error	286	16938	59.22402		
Corrected Total	287	22780			

Root MSE	7.69571	R-Square	0.2565
Dependent Mean	6.34342	Adj R-Sq	0.2539
Coeff Var	121.31803		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	5.44066	0.46249	11.76	<.0001	0.39471	13.78	<.0001
R	1	0.08646	0.00870	9.93	<.0001	0.01130	7.65	<.0001

Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	R
Intercept	0.1557998849	0.0016514575
R	0.0016514575	0.0001276855

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	8.01	0.0183

10.9.1.3. Elasticity

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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	200740	200740	240.94	<.0001
Error	287	239115	833.15405		
Corrected Total	288	439855			

Root MSE	28.86441	R-Square	0.4564
Dependent Mean	7.34465	Adj R-Sq	0.4545
Coeff Var	392.99901		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	1.90166	1.73374	1.10	0.2736	1.78864	1.06	0.2886
R	1	0.45695	0.02944	15.52	<.0001	0.04700	9.72	<.0001

Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	R
Intercept	3.1992384429	-0.027271115
R	-0.027271115	0.0022086843

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	5.09	0.0784

10.9.2. Overall relationship using fixed effect model

10.9.2.1. Jensen & Murphy

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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: TPCW

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	13574	234.03384	5.84	<.0001
Error	230	9211.03208	40.04797		
Corrected Total	288	22785			

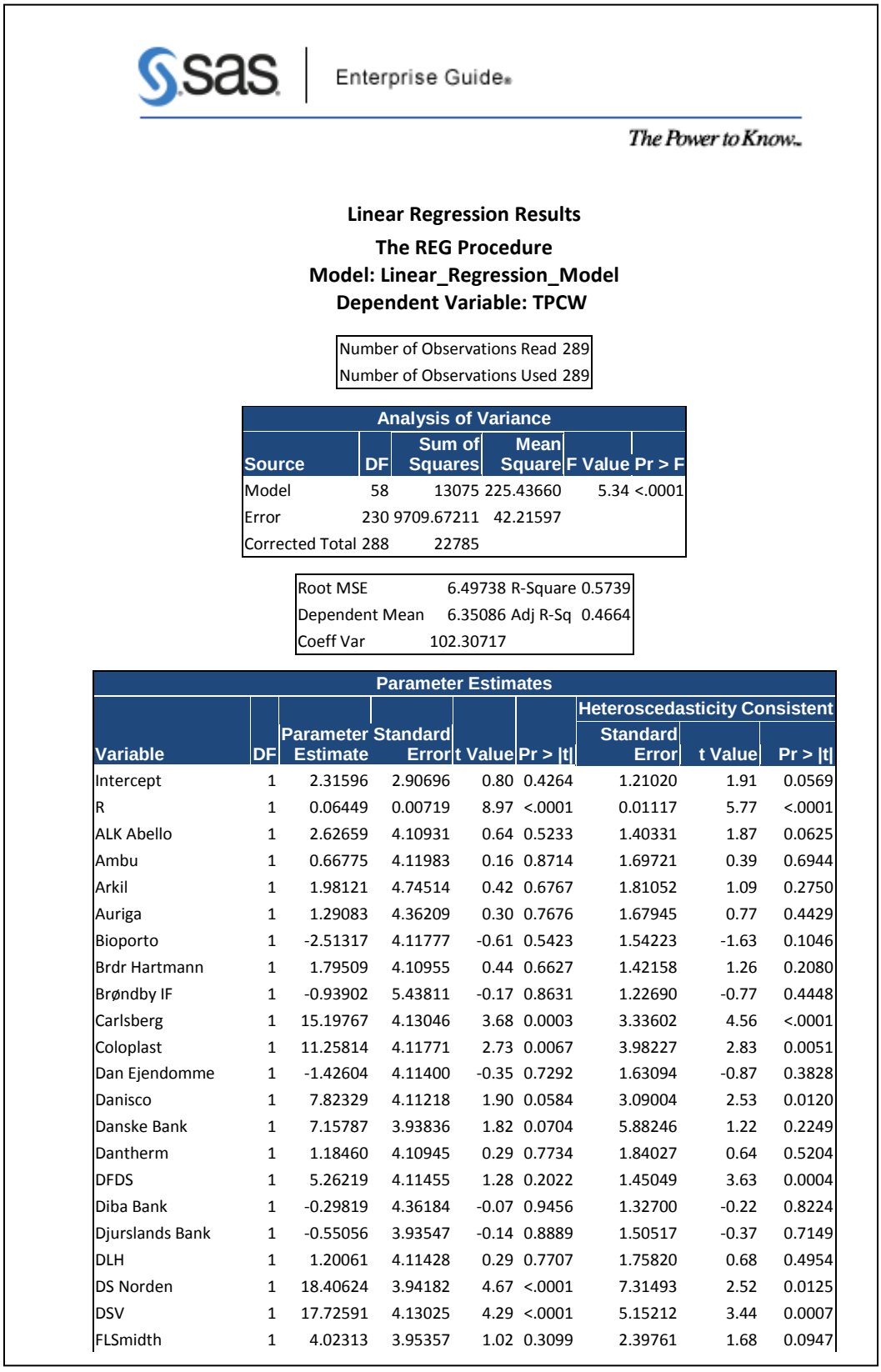
Root MSE	6.32835	R-Square	0.5957
Dependent Mean	6.35086	Adj R-Sq	0.4938
Coeff Var	99.64555		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	1.55554	2.83012	0.55	0.5831	0.19280	8.07	<.0001
SH WC	1	0.00027592	0.00002798	9.86	<.0001	0.00004621	5.97	<.0001
ALK Abello	1	2.80846	4.00247	0.70	0.4836	0.40144	7.00	<.0001
Ambu	1	3.24339	4.00240	0.81	0.4186	0.43912	7.39	<.0001
Arkil	1	1.69679	4.62157	0.37	0.7138	0.20417	8.31	<.0001
Auriga	1	2.80379	4.24519	0.66	0.5096	0.78156	3.59	0.0004
Bioporto	1	-0.16028	4.00240	-0.04	0.9681	0.24570	-0.65	0.5148
Brdr Hartmann	1	2.21597	4.00240	0.55	0.5803	0.33203	6.67	<.0001
Brøndby IF	1	0.37944	5.29467	0.07	0.9429	0.51381	0.74	0.4610
Carlsberg	1	14.80873	4.02429	3.68	0.0003	2.73384	5.42	<.0001
Coloplast	1	12.40230	4.00429	3.10	0.0022	3.82737	3.24	0.0014
Dan Ejendomme	1	0.32514	4.00240	0.08	0.9353	0.21508	1.51	0.1320
Danisco	1	9.40741	4.00245	2.35	0.0196	3.61578	2.60	0.0099
Danske Bank	1	10.59647	3.83657	2.76	0.0062	3.48270	3.04	0.0026
Dantherm	1	1.52195	4.00240	0.38	0.7041	0.50866	2.99	0.0031
DFDS	1	7.07868	4.00240	1.77	0.0783	1.29861	5.45	<.0001
Diba Bank	1	1.17412	4.24519	0.28	0.7824	0.21434	5.48	<.0001
Djurslands Bank	1	0.29750	3.83200	0.08	0.9382	0.22216	1.34	0.1819
DLH	1	3.04776	4.00240	0.76	0.4471	2.53795	1.20	0.2310
DS Norden	1	20.63520	3.83201	5.38	<.0001	7.69069	2.68	0.0078
DSV	1	19.91475	4.00543	4.97	<.0001	5.41424	3.68	0.0003

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
FLSmidth	1	6.61525	3.83309	1.73	0.0857	1.96096	3.37	0.0009
Flügger	1	1.51147	4.62158	0.33	0.7439	1.01663	1.49	0.1385
Glunz & Jensen	1	0.86546	4.00240	0.22	0.8290	0.31636	2.74	0.0067
GN store Nord	1	9.95822	4.24598	2.35	0.0199	1.08462	9.18	<.0001
Greentech	1	0.62759	4.00243	0.16	0.8755	1.64749	0.38	0.7036
Gyldendal	1	2.17481	3.83201	0.57	0.5709	0.24236	8.97	<.0001
H+H	1	1.55464	3.83201	0.41	0.6853	0.28672	5.42	<.0001
IC Company	1	3.94799	4.24523	0.93	0.3534	2.21481	1.78	0.0760
Jeudan	1	2.69381	3.83201	0.70	0.4828	0.32560	8.27	<.0001
Kbh Lufthavne	1	6.22650	4.24521	1.47	0.1438	1.37636	4.52	<.0001
Lån og Spar Bank	1	1.21536	4.00240	0.30	0.7617	0.27057	4.49	<.0001
Lundbeck	1	6.57563	4.00261	1.64	0.1018	1.15527	5.69	<.0001
Mols Linien	1	1.80703	3.83201	0.47	0.6377	1.76748	1.02	0.3077
Netop Solutions	1	2.07119	5.29467	0.39	0.6960	0.40246	5.15	<.0001
NKT Holding	1	8.14361	4.00248	2.03	0.0430	5.94429	1.37	0.1720
Nordjyske Bank	1	2.49359	3.83200	0.65	0.5159	0.73240	3.40	0.0008
Novo Nordisk	1	5.74759	4.03565	1.42	0.1557	4.04609	1.42	0.1568
Novozymes	1	18.77190	3.83490	4.90	<.0001	5.47115	3.43	0.0007
NTR Holding	1	-0.58054	4.00240	-0.15	0.8848	0.27009	-2.15	0.0326
Royal Unibrew	1	8.87862	4.00245	2.22	0.0275	3.44950	2.57	0.0107
RTX	1	0.43958	4.62157	0.10	0.9243	0.20771	2.12	0.0354
Salling Bank	1	0.33887	3.83200	0.09	0.9296	0.20584	1.65	0.1011
Sanistål	1	2.34061	3.83201	0.61	0.5419	0.66802	3.50	0.0006
Satair	1	4.35356	3.83200	1.14	0.2571	0.89672	4.85	<.0001
Simcorp	1	6.73389	3.83201	1.76	0.0802	4.96022	1.36	0.1759
Sjælsø	1	3.03906	4.62178	0.66	0.5115	0.65672	4.63	<.0001
Skako	1	-0.00167	5.29468	-0.00	0.9997	0.36915	-0.00	0.9964
Skjern Bank	1	0.65508	3.83200	0.17	0.8644	0.33006	1.98	0.0484
SP Group	1	1.42297	3.83200	0.37	0.7107	2.49682	0.57	0.5693
Svendborg Sparkasse	1	0.78590	3.83200	0.21	0.8377	0.28075	2.80	0.0056
Thrane & Thrane	1	2.60041	4.24518	0.61	0.5408	1.55780	1.67	0.0964
Tivoli	1	1.87646	3.83200	0.49	0.6248	0.22883	8.20	<.0001
TK Development	1	3.15383	3.83201	0.82	0.4113	1.46385	2.15	0.0322
Topsil	1	3.59896	4.00240	0.90	0.3695	1.37342	2.62	0.0094
Vestas	1	7.91659	4.00291	1.98	0.0492	3.89871	2.03	0.0434
Vestfyns Bank	1	0.12278	3.83200	0.03	0.9745	0.20449	0.60	0.5488
Vestjydsk Bank	1	2.46241	4.00242	0.62	0.5390	0.43529	5.66	<.0001
Vordingborg Bank	1	-0.11801	3.83200	-0.03	0.9755	0.20040	-0.59	0.5565

10.9.2.2. Equity at stake



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: TPCW

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	13075	225.43660	5.34	<.0001
Error	230	9709.67211	42.21597		
Corrected Total	288	22785			

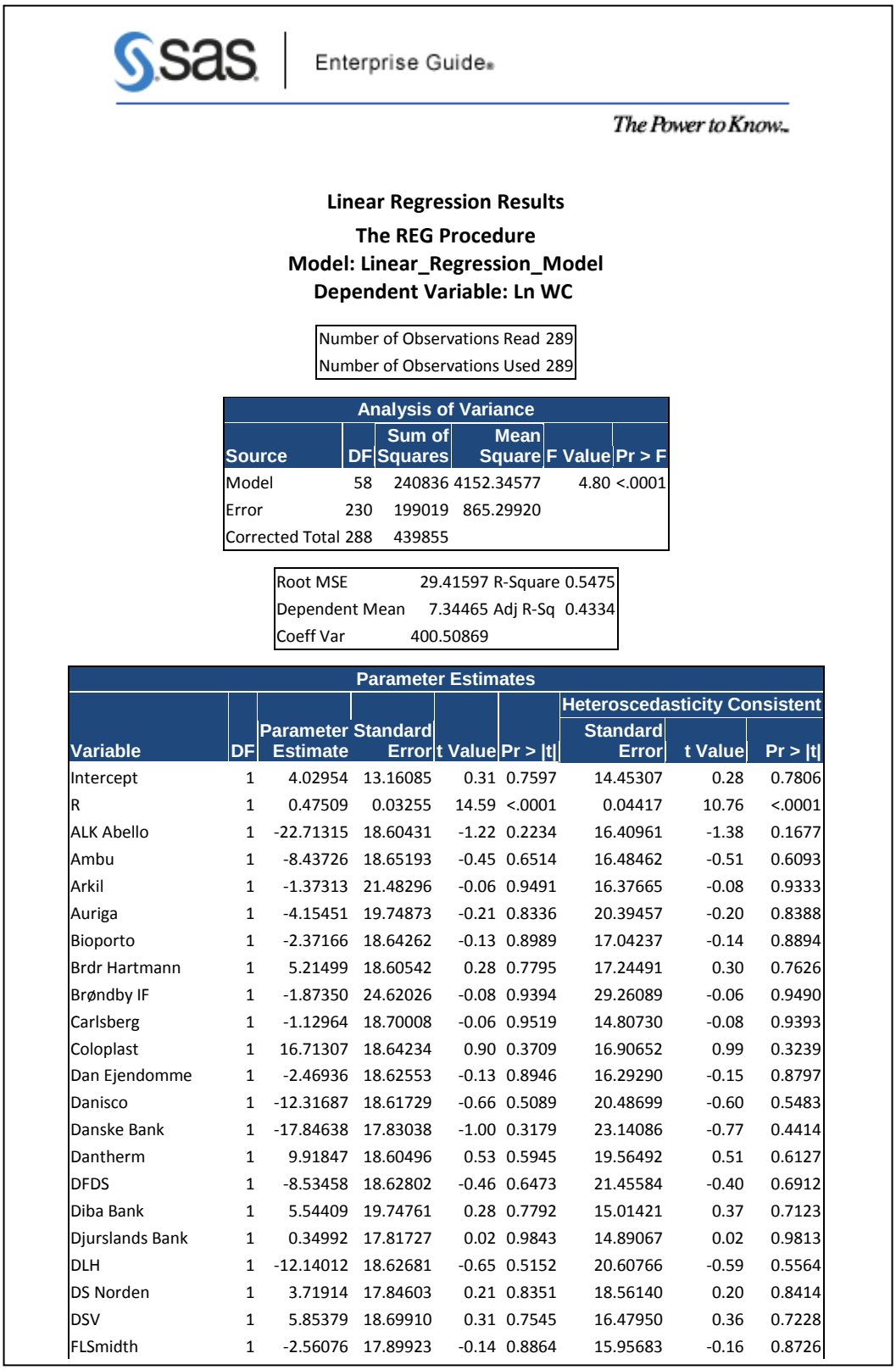
Root MSE	6.49738	R-Square	0.5739
Dependent Mean	6.35086	Adj R-Sq	0.4664
Coeff Var	102.30717		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	2.31596	2.90696	0.80	0.4264	1.21020	1.91	0.0569
R	1	0.06449	0.00719	8.97	<.0001	0.01117	5.77	<.0001
ALK Abello	1	2.62659	4.10931	0.64	0.5233	1.40331	1.87	0.0625
Ambu	1	0.66775	4.11983	0.16	0.8714	1.69721	0.39	0.6944
Arkil	1	1.98121	4.74514	0.42	0.6767	1.81052	1.09	0.2750
Auriga	1	1.29083	4.36209	0.30	0.7676	1.67945	0.77	0.4429
Bioporto	1	-2.51317	4.11777	-0.61	0.5423	1.54223	-1.63	0.1046
Brdr Hartmann	1	1.79509	4.10955	0.44	0.6627	1.42158	1.26	0.2080
Brøndby IF	1	-0.93902	5.43811	-0.17	0.8631	1.22690	-0.77	0.4448
Carlsberg	1	15.19767	4.13046	3.68	0.0003	3.33602	4.56	<.0001
Coloplast	1	11.25814	4.11771	2.73	0.0067	3.98227	2.83	0.0051
Dan Ejendomme	1	-1.42604	4.11400	-0.35	0.7292	1.63094	-0.87	0.3828
Danisco	1	7.82329	4.11218	1.90	0.0584	3.09004	2.53	0.0120
Danske Bank	1	7.15787	3.93836	1.82	0.0704	5.88246	1.22	0.2249
Dantherm	1	1.18460	4.10945	0.29	0.7734	1.84027	0.64	0.5204
DFDS	1	5.26219	4.11455	1.28	0.2022	1.45049	3.63	0.0004
Diba Bank	1	-0.29819	4.36184	-0.07	0.9456	1.32700	-0.22	0.8224
Djurslands Bank	1	-0.55056	3.93547	-0.14	0.8889	1.50517	-0.37	0.7149
DLH	1	1.20061	4.11428	0.29	0.7707	1.75820	0.68	0.4954
DS Norden	1	18.40624	3.94182	4.67	<.0001	7.31493	2.52	0.0125
DSV	1	17.72591	4.13025	4.29	<.0001	5.15212	3.44	0.0007
FLSmidth	1	4.02313	3.95357	1.02	0.3099	2.39761	1.68	0.0947

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
Flügger	1	0.59177	4.74592	0.12	0.9009	2.07908	0.28	0.7762
Glunz & Jensen	1	-0.06395	4.11061	-0.02	0.9876	2.11960	-0.03	0.9760
GN store Nord	1	9.38122	4.35865	2.15	0.0324	1.25682	7.46	<.0001
Greentech	1	-2.09813	4.11920	-0.51	0.6110	1.49906	-1.40	0.1630
Gyldendal	1	-0.98044	3.95057	-0.25	0.8042	1.76171	-0.56	0.5784
H+H	1	1.95244	3.93469	0.50	0.6202	1.68521	1.16	0.2478
IC Company	1	1.59851	4.36776	0.37	0.7147	2.01379	0.79	0.4281
Jeudan	1	1.49056	3.93676	0.38	0.7053	1.36751	1.09	0.2769
Kbh Lufthavne	1	4.89315	4.36062	1.12	0.2630	2.20287	2.22	0.0273
Lån og Spar Bank	1	0.34973	4.11044	0.09	0.9323	1.28760	0.27	0.7862
Lundbeck	1	5.83076	4.11132	1.42	0.1575	1.61480	3.61	0.0004
Mols Linien	1	0.78849	3.93588	0.20	0.8414	1.43445	0.55	0.5831
Netop Solutions	1	3.15361	5.43748	0.58	0.5625	3.40907	0.93	0.3559
NKT Holding	1	5.70972	4.11645	1.39	0.1668	4.41408	1.29	0.1971
Nordjyske Bank	1	1.36738	3.93634	0.35	0.7286	1.27575	1.07	0.2849
Novo Nordisk	1	15.66498	3.94475	3.97	<.0001	3.19660	4.90	<.0001
Novozymes	1	18.13139	3.94138	4.60	<.0001	5.77133	3.14	0.0019
NTR Holding	1	-2.24757	4.11353	-0.55	0.5853	1.75807	-1.28	0.2024
Royal Unibrew	1	4.04904	4.14751	0.98	0.3300	2.80926	1.44	0.1509
RTX	1	-1.29660	4.74880	-0.27	0.7851	3.40212	-0.38	0.7035
Salling Bank	1	-0.24932	3.93490	-0.06	0.9495	1.44594	-0.17	0.8633
Sanistål	1	2.81352	3.93480	0.72	0.4753	1.56718	1.80	0.0739
Satair	1	2.15247	3.94215	0.55	0.5856	1.60087	1.34	0.1801
Simcorp	1	4.62283	3.94201	1.17	0.2421	4.10233	1.13	0.2610
Sjælsø	1	4.08430	4.74787	0.86	0.3906	2.07972	1.96	0.0508
Skako	1	3.28531	5.44902	0.60	0.5472	1.62194	2.03	0.0440
Skjern Bank	1	0.45791	3.93441	0.12	0.9074	1.67183	0.27	0.7844
SP Group	1	-0.13174	3.93816	-0.03	0.9733	1.63373	-0.08	0.9358
Svendborg Sparkasse	1	-0.14752	3.93573	-0.04	0.9701	1.38697	-0.11	0.9154
Thrane & Thrane	1	1.63863	4.35984	0.38	0.7074	1.47984	1.11	0.2693
Tivoli	1	0.75969	3.93639	0.19	0.8471	1.29189	0.59	0.5571
TK Development	1	0.51203	3.94501	0.13	0.8968	1.65282	0.31	0.7570
Topsil	1	-3.34230	4.18212	-0.80	0.4250	3.82142	-0.87	0.3827
Vestas	1	5.03463	4.11695	1.22	0.2226	5.53692	0.91	0.3642
Vestfyns Bank	1	-0.65110	3.93530	-0.17	0.8687	1.43674	-0.45	0.6508
Vestjydsk Bank	1	2.15728	4.10935	0.52	0.6001	2.22727	0.97	0.3338
Vordingborg Bank	1	-0.57929	3.93469	-0.15	0.8831	1.59323	-0.36	0.7165

10.9.2.3. Elasticity



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	240836	4152.34577	4.80	<.0001
Error	230	199019	865.29920		
Corrected Total	288	439855			

Root MSE	29.41597	R-Square	0.5475
Dependent Mean	7.34465	Adj R-Sq	0.4334
Coeff Var	400.50869		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	4.02954	13.16085	0.31	0.7597	14.45307	0.28	0.7806
R	1	0.47509	0.03255	14.59	<.0001	0.04417	10.76	<.0001
ALK Abello	1	-22.71315	18.60431	-1.22	0.2234	16.40961	-1.38	0.1677
Ambu	1	-8.43726	18.65193	-0.45	0.6514	16.48462	-0.51	0.6093
Arkil	1	-1.37313	21.48296	-0.06	0.9491	16.37665	-0.08	0.9333
Auriga	1	-4.15451	19.74873	-0.21	0.8336	20.39457	-0.20	0.8388
Bioporto	1	-2.37166	18.64262	-0.13	0.8989	17.04237	-0.14	0.8894
Brdr Hartmann	1	5.21499	18.60542	0.28	0.7795	17.24491	0.30	0.7626
Brøndby IF	1	-1.87350	24.62026	-0.08	0.9394	29.26089	-0.06	0.9490
Carlsberg	1	-1.12964	18.70008	-0.06	0.9519	14.80730	-0.08	0.9393
Coloplast	1	16.71307	18.64234	0.90	0.3709	16.90652	0.99	0.3239
Dan Ejendomme	1	-2.46936	18.62553	-0.13	0.8946	16.29290	-0.15	0.8797
Danisco	1	-12.31687	18.61729	-0.66	0.5089	20.48699	-0.60	0.5483
Danske Bank	1	-17.84638	17.83038	-1.00	0.3179	23.14086	-0.77	0.4414
Dantherm	1	9.91847	18.60496	0.53	0.5945	19.56492	0.51	0.6127
DFDS	1	-8.53458	18.62802	-0.46	0.6473	21.45584	-0.40	0.6912
Diba Bank	1	5.54409	19.74761	0.28	0.7792	15.01421	0.37	0.7123
Djurslands Bank	1	0.34992	17.81727	0.02	0.9843	14.89067	0.02	0.9813
DLH	1	-12.14012	18.62681	-0.65	0.5152	20.60766	-0.59	0.5564
DS Norden	1	3.71914	17.84603	0.21	0.8351	18.56140	0.20	0.8414
DSV	1	5.85379	18.69910	0.31	0.7545	16.47950	0.36	0.7228
FLSmidth	1	-2.56076	17.89923	-0.14	0.8864	15.95683	-0.16	0.8726

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
Flügger	1	-9.24996	21.48647	-0.43	0.6672	15.55938	-0.59	0.5528
Glunz & Jensen	1	-3.85917	18.61020	-0.21	0.8359	16.85871	-0.23	0.8191
GN store Nord	1	23.23860	19.73319	1.18	0.2402	18.87110	1.23	0.2194
Greentech	1	-10.45079	18.64908	-0.56	0.5758	18.97957	-0.55	0.5824
Gyldendal	1	-23.18110	17.88566	-1.30	0.1962	16.21787	-1.43	0.1543
H+H	1	-8.89492	17.81375	-0.50	0.6180	17.73870	-0.50	0.6165
IC Company	1	-16.02783	19.77441	-0.81	0.4185	29.16153	-0.55	0.5831
Jeudan	1	-3.56250	17.82310	-0.20	0.8418	15.17543	-0.23	0.8146
Kbh Lufthavne	1	9.70108	19.74207	0.49	0.6236	25.67108	0.38	0.7059
Lån og Spar Bank	1	0.94415	18.60945	0.05	0.9596	14.97899	0.06	0.9498
Lundbeck	1	-4.45713	18.61341	-0.24	0.8110	14.68771	-0.30	0.7618
Mols Linien	1	-6.05301	17.81914	-0.34	0.7344	18.76939	-0.32	0.7474
Netop Solutions	1	34.34789	24.61741	1.40	0.1643	28.98761	1.18	0.2373
NKT Holding	1	-10.54218	18.63664	-0.57	0.5722	21.18637	-0.50	0.6192
Nordjyske Bank	1	-3.53936	17.82123	-0.20	0.8427	14.72090	-0.24	0.8102
Novo Nordisk	1	-0.90778	17.85928	-0.05	0.9595	15.18377	-0.06	0.9524
Novozymes	1	14.06954	17.84405	0.79	0.4312	23.51097	0.60	0.5501
NTR Holding	1	23.72927	18.62342	1.27	0.2039	25.12389	0.94	0.3459
Royal Unibrew	1	13.34333	18.77728	0.71	0.4780	18.44396	0.72	0.4701
RTX	1	-39.42517	21.49951	-1.83	0.0680	30.44078	-1.30	0.1966
Salling Bank	1	1.73370	17.81472	0.10	0.9226	14.95444	0.12	0.9078
Sanistål	1	4.96331	17.81427	0.28	0.7808	15.91671	0.31	0.7555
Satair	1	0.63405	17.84754	0.04	0.9717	15.84723	0.04	0.9681
Simcorp	1	-2.92370	17.84688	-0.16	0.8700	17.20804	-0.17	0.8652
Sjælsø	1	-9.56191	21.49531	-0.44	0.6569	14.62130	-0.65	0.5138
Skako	1	30.07444	24.66965	1.22	0.2241	14.91065	2.02	0.0449
Skjern Bank	1	0.40867	17.81246	0.02	0.9817	14.78518	0.03	0.9780
SP Group	1	5.18672	17.82944	0.29	0.7714	22.88139	0.23	0.8209
Svendborg Sparkasse	1	-0.24621	17.81847	-0.01	0.9890	15.06376	-0.02	0.9870
Thrane & Thrane	1	-21.57215	19.73855	-1.09	0.2756	23.62685	-0.91	0.3622
Tivoli	1	-2.29365	17.82144	-0.13	0.8977	15.90351	-0.14	0.8855
TK Development	1	-17.96548	17.86046	-1.01	0.3155	17.19484	-1.04	0.2972
Topsil	1	-15.07676	18.93393	-0.80	0.4267	21.75573	-0.69	0.4890
Vestas	1	-26.37440	18.63893	-1.42	0.1584	27.15216	-0.97	0.3324
Vestfyns Bank	1	-0.69409	17.81653	-0.04	0.9690	14.62461	-0.05	0.9622
Vestjydsk Bank	1	11.51441	18.60449	0.62	0.5366	19.45820	0.59	0.5546
Vordingborg Bank	1	2.54105	17.81376	0.14	0.8867	15.53661	0.16	0.8702

10.9.3. Regression results for the individual years

10.9.3.1. 2005 Jensen & Murphy

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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Total Pay/change in wealth

Number of Observations Read	46
Number of Observations Used	45
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	517.49275	517.49275	23.87	<.0001
Error	43	932.37200	21.68307		
Corrected Total	44	1449.86476			

Root MSE	4.65651	R-Square	0.3569
Dependent Mean	6.57372	Adj R-Sq	0.3420
Coeff Var	70.83526		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	5.27165	0.74356	7.09	<.0001	0.71105	7.41	<.0001
SH wealth created	1	0.00052516	0.00010750	4.89	<.0001	0.00006202	8.47	<.0001

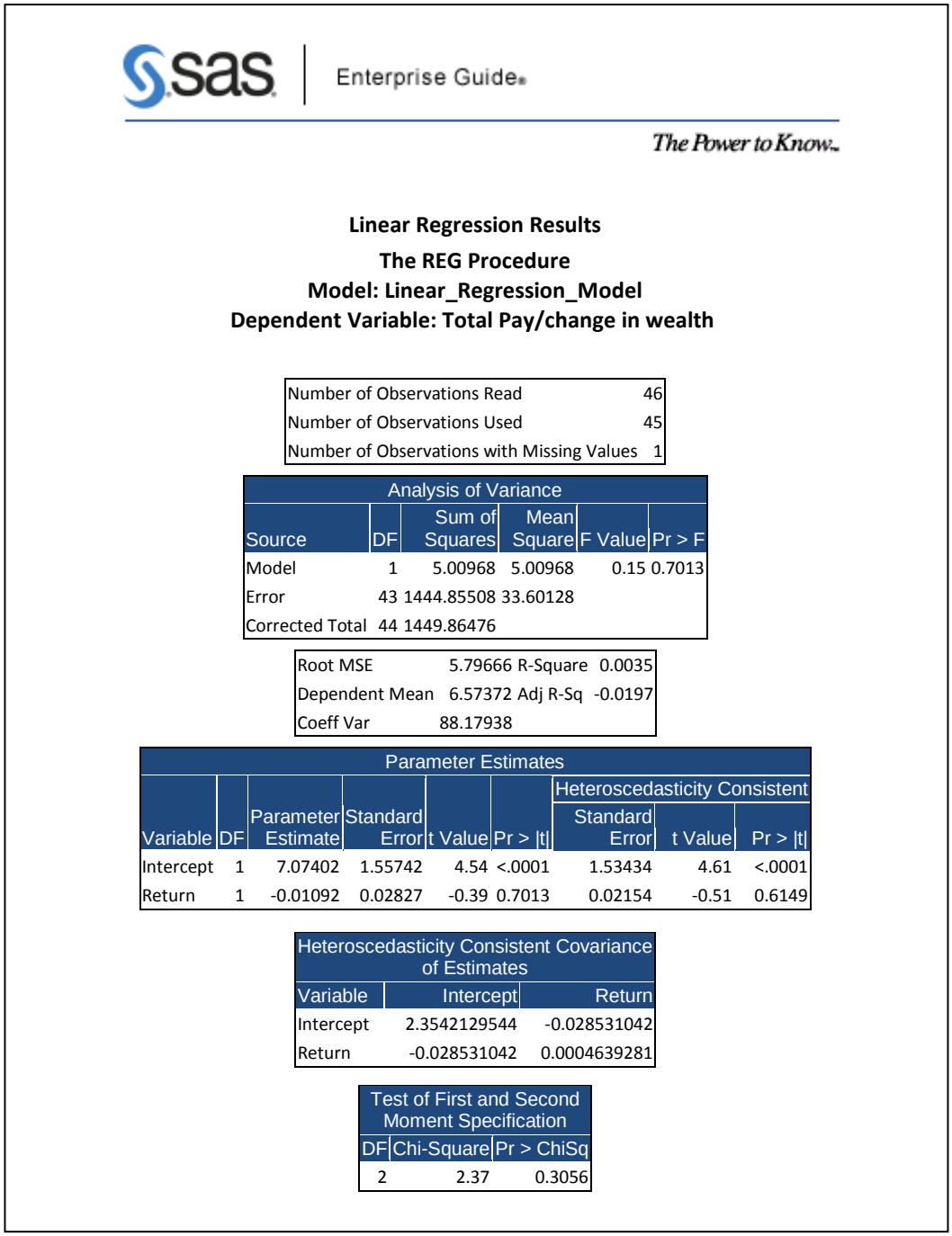
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	SH wealth created
Intercept	0.5055964622	-0.000013876
SH wealth created	-0.000013876	3.8461817E-9

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	2.53	0.2823

10.9.3.2. 2005 Equity at stake



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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	46
Number of Observations Used	45
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	5.00968	5.00968	0.15	0.7013
Error	43	1444.85508	33.60128		
Corrected Total	44	1449.86476			

Root MSE	5.79666	R-Square	0.0035
Dependent Mean	6.57372	Adj R-Sq	-0.0197
Coeff Var	88.17938		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	7.07402	1.55742	4.54	<.0001	1.53434	4.61	<.0001
Return	1	-0.01092	0.02827	-0.39	0.7013	0.02154	-0.51	0.6149

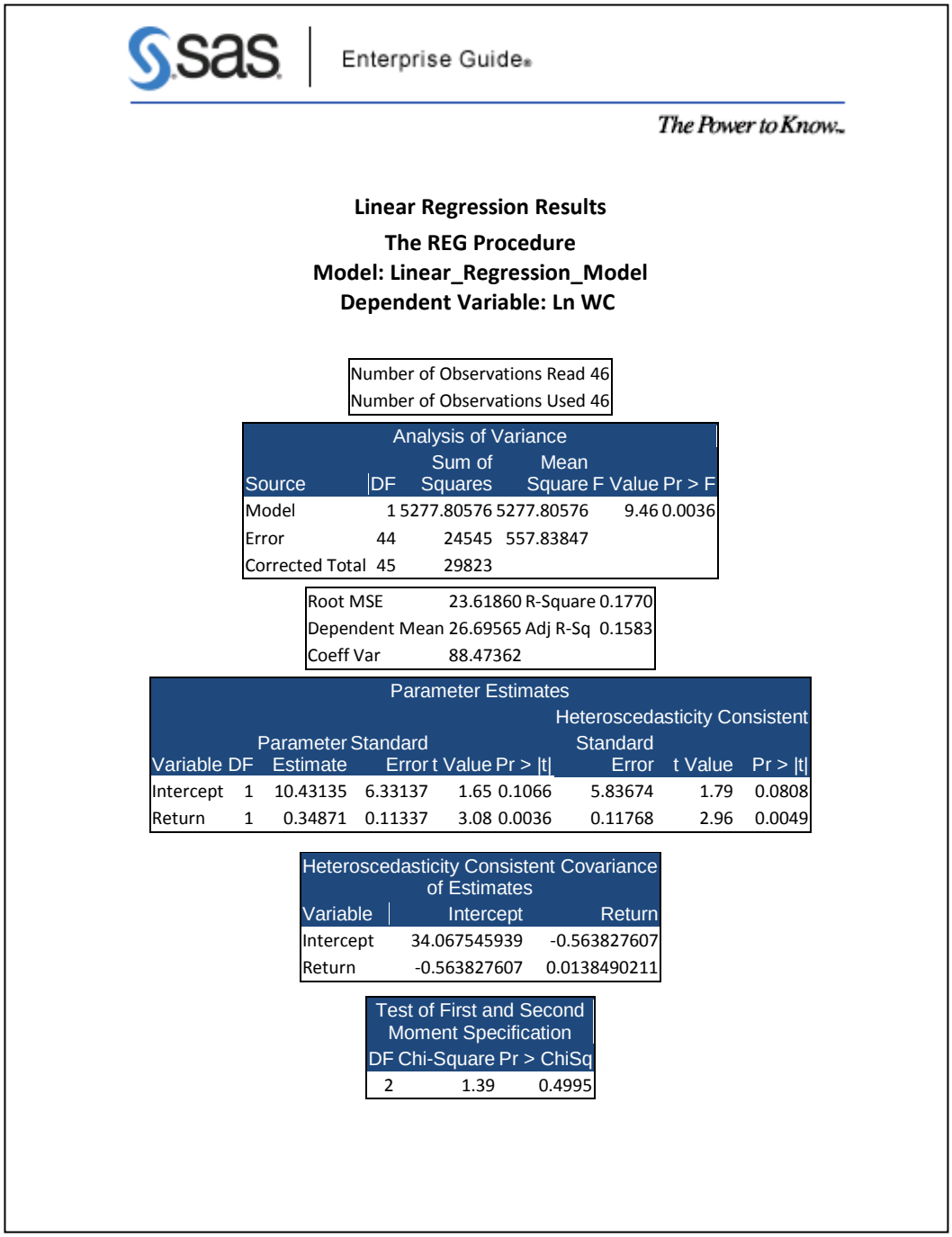
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	2.3542129544	-0.028531042
Return	-0.028531042	0.0004639281

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	2.37	0.3056

10.9.3.3. 2005 Elasticity



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	46
Number of Observations Used	46

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	5277.80576	5277.80576	9.46	0.0036
Error	44	24545	557.83847		
Corrected Total	45	29823			

Root MSE	23.61860	R-Square	0.1770
Dependent Mean	26.69565	Adj R-Sq	0.1583
Coeff Var	88.47362		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	10.43135	6.33137	1.65	0.1066	5.83674	1.79	0.0808
Return	1	0.34871	0.11337	3.08	0.0036	0.11768	2.96	0.0049

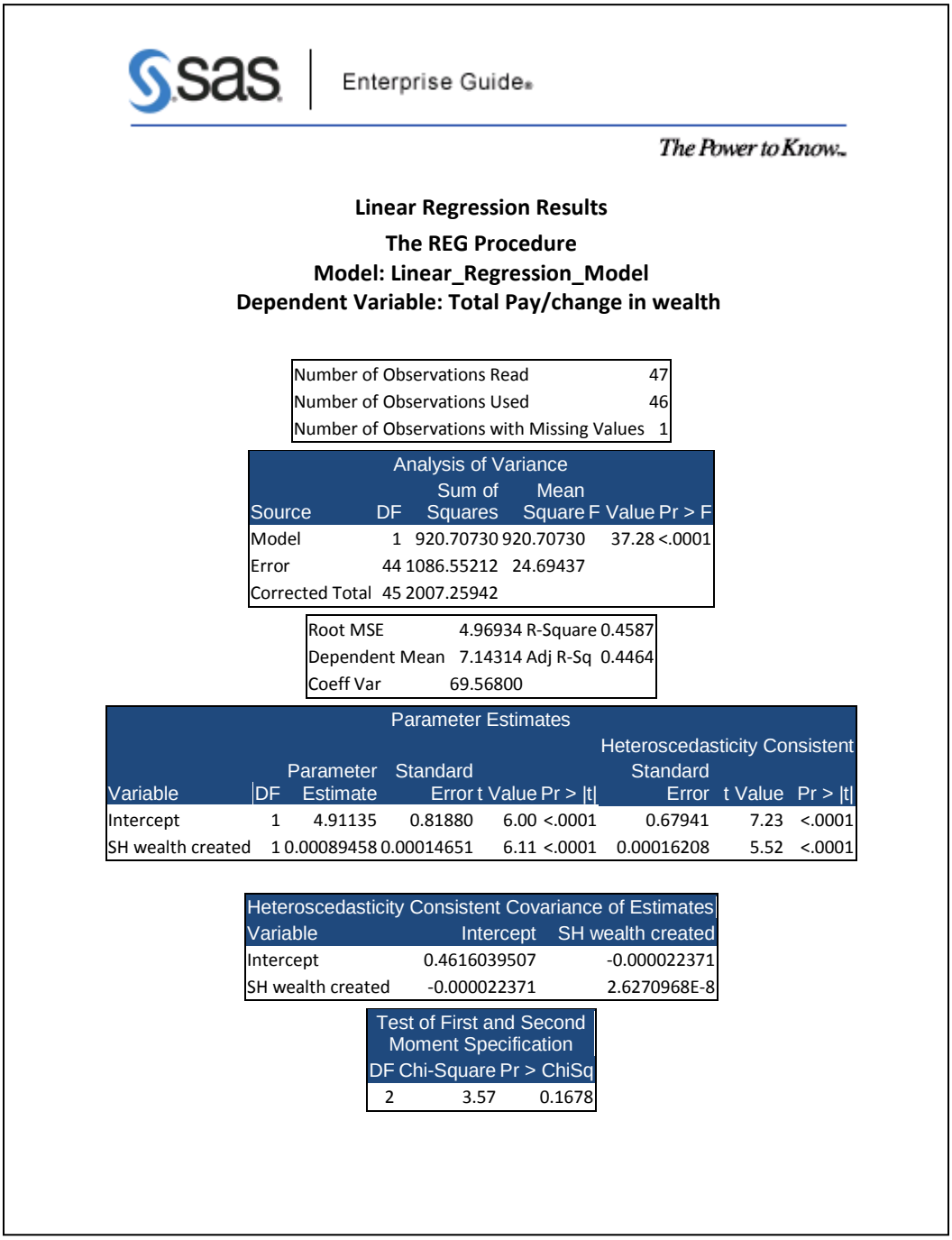
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	34.067545939	-0.563827607
Return	-0.563827607	0.0138490211

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	1.39	0.4995

10.9.3.4. 2006 Jensen & Murphy



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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	47
Number of Observations Used	46
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	920.70730	920.70730	37.28	<.0001
Error	44	1086.55212	24.69437		
Corrected Total	45	2007.25942			

Root MSE	4.96934	R-Square	0.4587
Dependent Mean	7.14314	Adj R-Sq	0.4464
Coeff Var	69.56800		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	4.91135	0.81880	6.00	<.0001	0.67941	7.23	<.0001
SH wealth created	1	0.00089458	0.00014651	6.11	<.0001	0.00016208	5.52	<.0001

Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	SH wealth created
Intercept	0.4616039507	-0.000022371
SH wealth created	-0.000022371	2.6270968E-8

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	3.57	0.1678

10.9.3.5. 2006 Equity at stake

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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	47
Number of Observations Used	46
Number of Observations with Missing Values	1

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	548.77046	548.77046	15.19	0.0003
Error	44	1589.41017	36.12296		
Corrected Total	45	2138.18063			

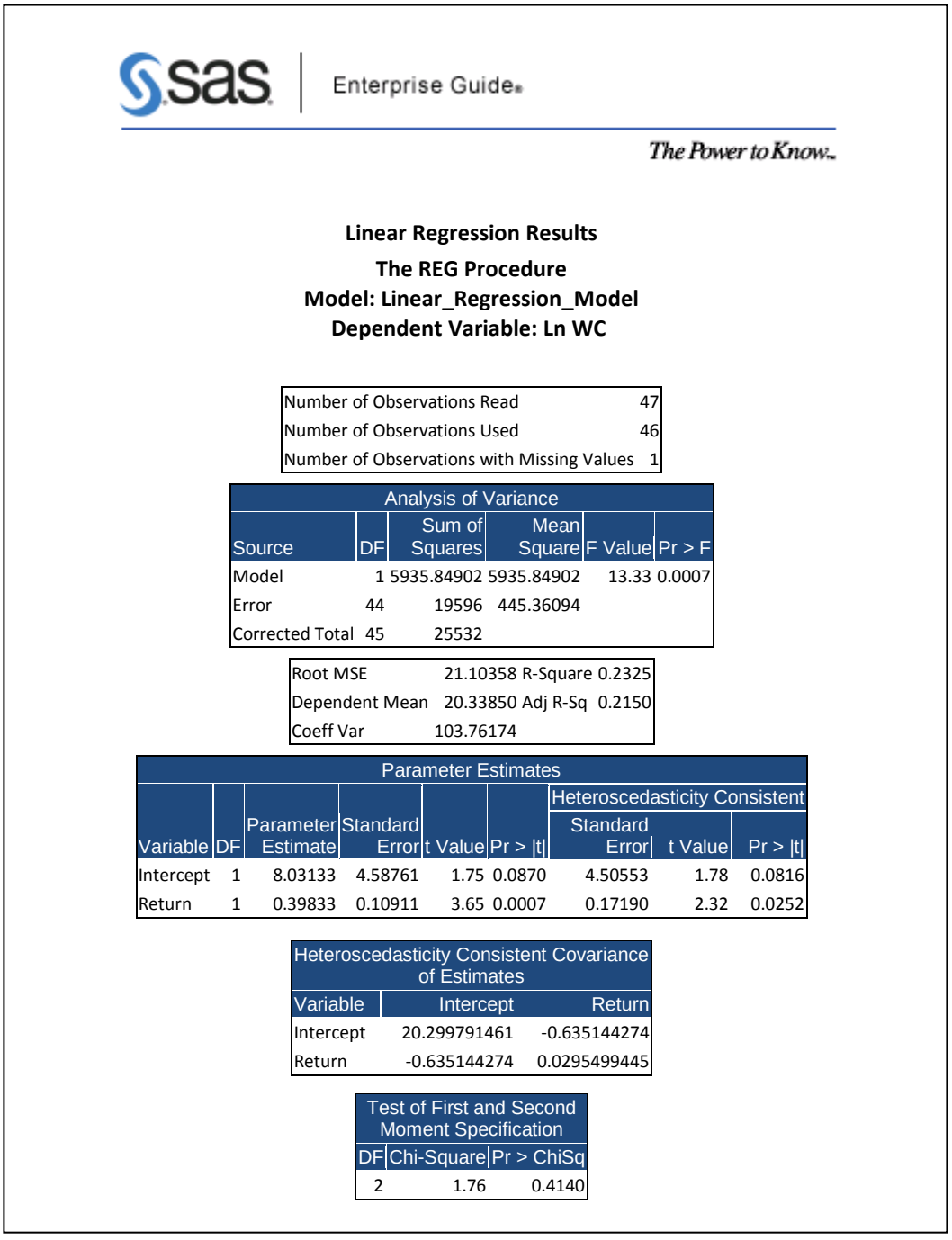
Root MSE	6.01024	R-Square	0.2567
Dependent Mean	7.36644	Adj R-Sq	0.2398
Coeff Var	81.58945		

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
Intercept	1	3.62437	1.30654	2.77	0.0081	1.03679	3.50	0.0011
Return	1	0.12111	0.03107	3.90	0.0003	0.03128	3.87	0.0004

Heteroscedasticity Consistent Covariance of Estimates		
Variable	Intercept	Return
Intercept	1.0749268408	-0.020359118
Return	-0.020359118	0.0009786912

Test of First and Second Moment Specification		
DF	Chi-Square	Pr > ChiSq
2	4.66	0.0971

10.9.3.6. 2006 Elasticity



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	47
Number of Observations Used	46
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	5935.84902	5935.84902	13.33	0.0007
Error	44	19596	445.36094		
Corrected Total	45	25532			

Root MSE	21.10358	R-Square	0.2325
Dependent Mean	20.33850	Adj R-Sq	0.2150
Coeff Var	103.76174		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	8.03133	4.58761	1.75	0.0870	4.50553	1.78	0.0816
Return	1	0.39833	0.10911	3.65	0.0007	0.17190	2.32	0.0252

Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	20.299791461	-0.635144274
Return	-0.635144274	0.0295499445

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	1.76	0.4140

10.9.3.7. 2007 Jensen & Murphy

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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	47
Number of Observations Used	46
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	2309.54009	2309.54009	23.51	<.0001
Error	44	4322.30192	98.23413		
Corrected Total	45	6631.84201			

Root MSE	9.91131	R-Square	0.3483
Dependent Mean	6.89431	Adj R-Sq	0.3334
Coeff Var	143.76068		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	6.47798	1.46386	4.43	<.0001	1.38269	4.69	<.0001
SH wealth created	1	0.00084928	0.00017515	4.85	<.0001	0.00023922	3.55	0.0009

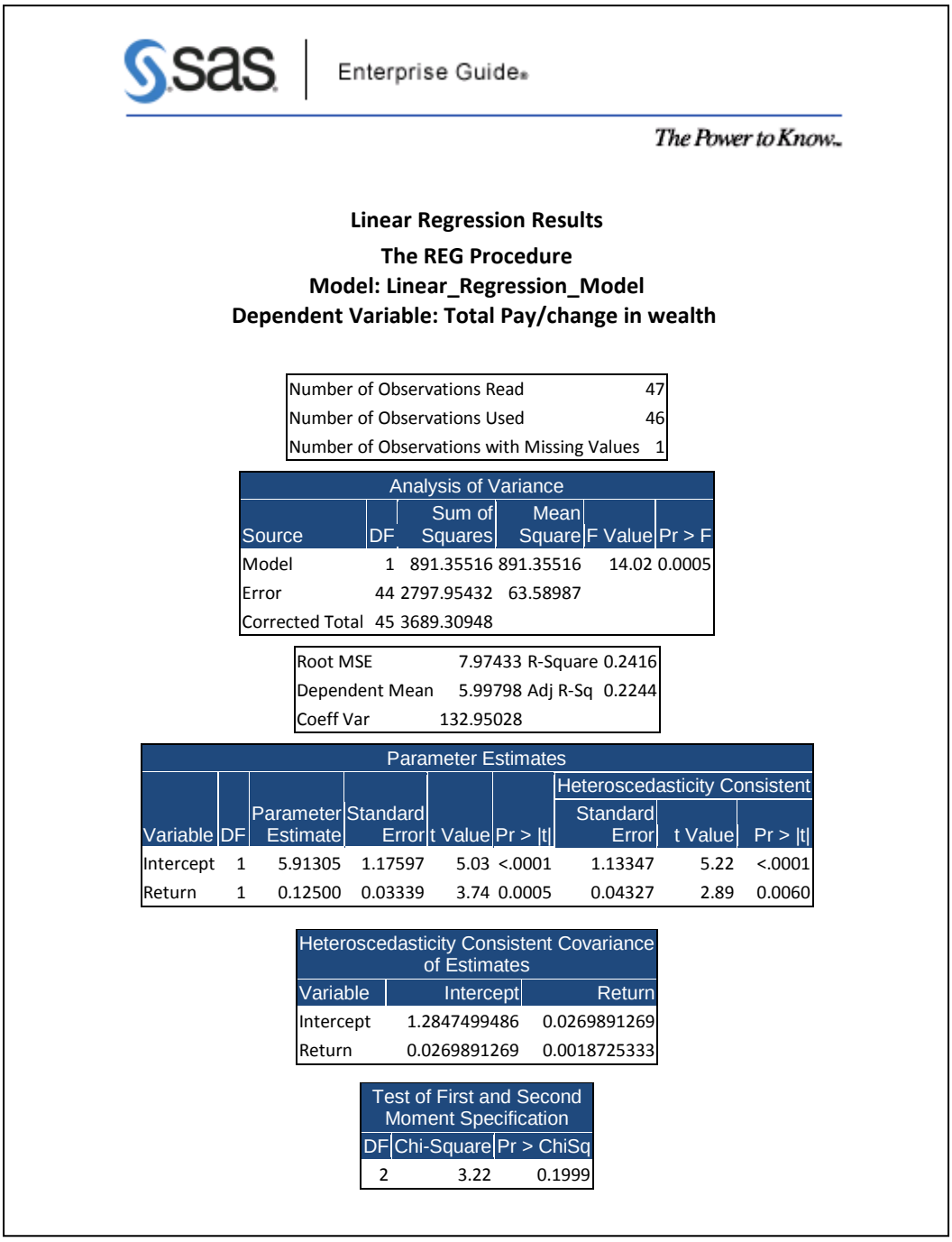
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	SH wealth created
Intercept	1.9118235178	0.0001194348
SH wealth created	0.0001194348	5.7225066E-8

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	2.04	0.3612

10.9.3.8. 2007 Equity at stake



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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	47
Number of Observations Used	46
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	891.35516	891.35516	14.02	0.0005
Error	44	2797.95432	63.58987		
Corrected Total	45	3689.30948			

Root MSE	7.97433	R-Square	0.2416
Dependent Mean	5.99798	Adj R-Sq	0.2244
Coeff Var	132.95028		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	5.91305	1.17597	5.03	<.0001	1.13347	5.22	<.0001
Return	1	0.12500	0.03339	3.74	0.0005	0.04327	2.89	0.0060

Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	1.2847499486	0.0269891269
Return	0.0269891269	0.0018725333

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	3.22	0.1999

10.9.3.9. 2007 Elasticity

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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	47
Number of Observations Used	47

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	26654	26654	35.99	<.0001
Error	45	33325	740.56244		
Corrected Total	46	59979			

Root MSE	27.21328	R-Square	0.4444
Dependent Mean	7.71160	Adj R-Sq	0.4320
Coeff Var	352.88759		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	5.90318	3.98089	1.48	0.1451	3.85938	1.53	0.1331
Return	1	0.62843	0.10475	6.00	<.0001	0.13265	4.74	<.0001

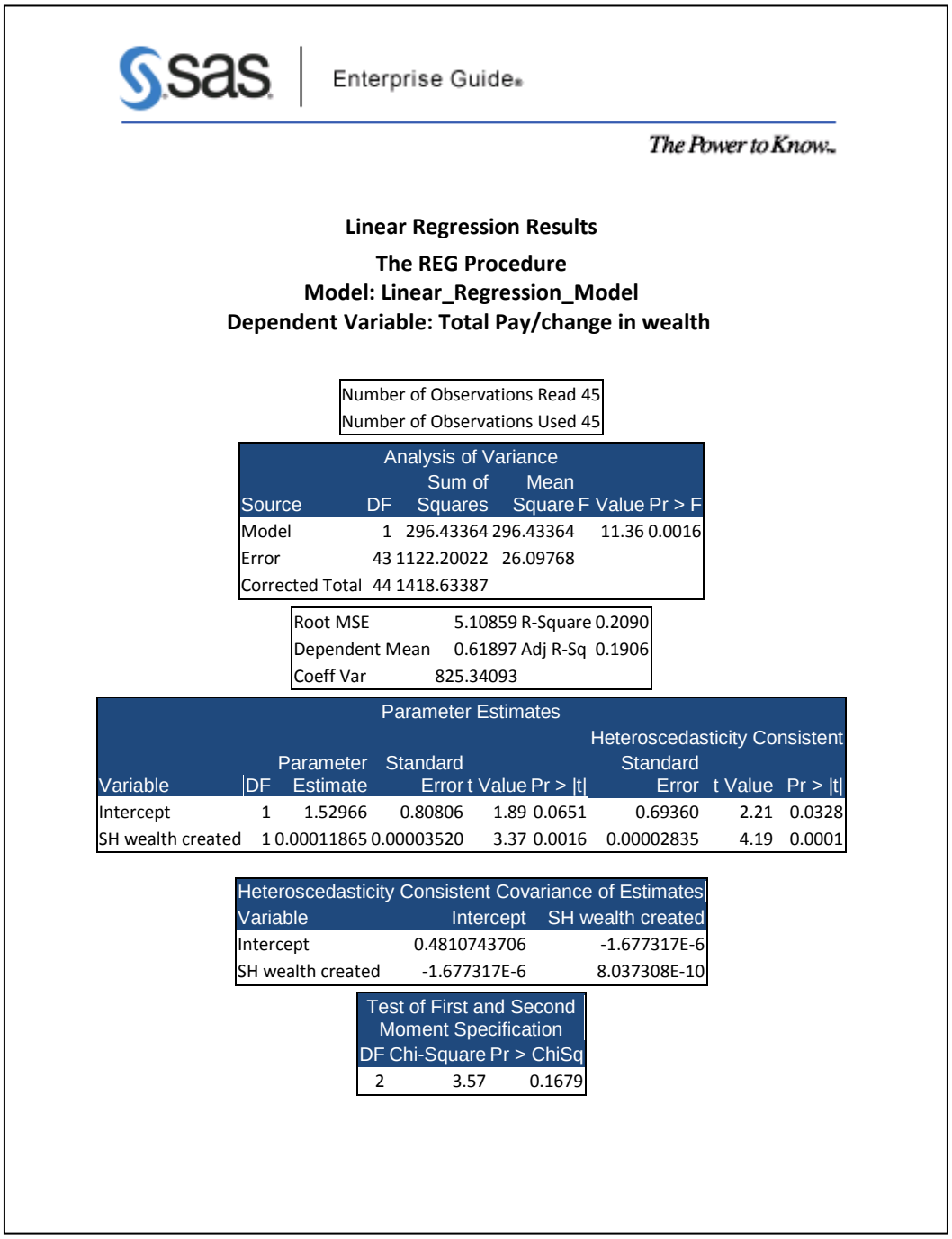
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	14.89482207	0.0079250416
Return	0.0079250416	0.0175966632

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	1.98	0.3713

10.9.3.10. 2008 Jensen & Murphy



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Total Pay/change in wealth

Number of Observations Read 45
Number of Observations Used 45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	296.43364	296.43364	11.36	0.0016
Error	43	1122.20022	26.09768		
Corrected Total	44	1418.63387			

Root MSE	5.10859	R-Square	0.2090
Dependent Mean	0.61897	Adj R-Sq	0.1906
Coeff Var	825.34093		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	1.52966	0.80806	1.89	0.0651	0.69360	2.21	0.0328
SH wealth created	1	0.00011865	0.00003520	3.37	0.0016	0.00002835	4.19	0.0001

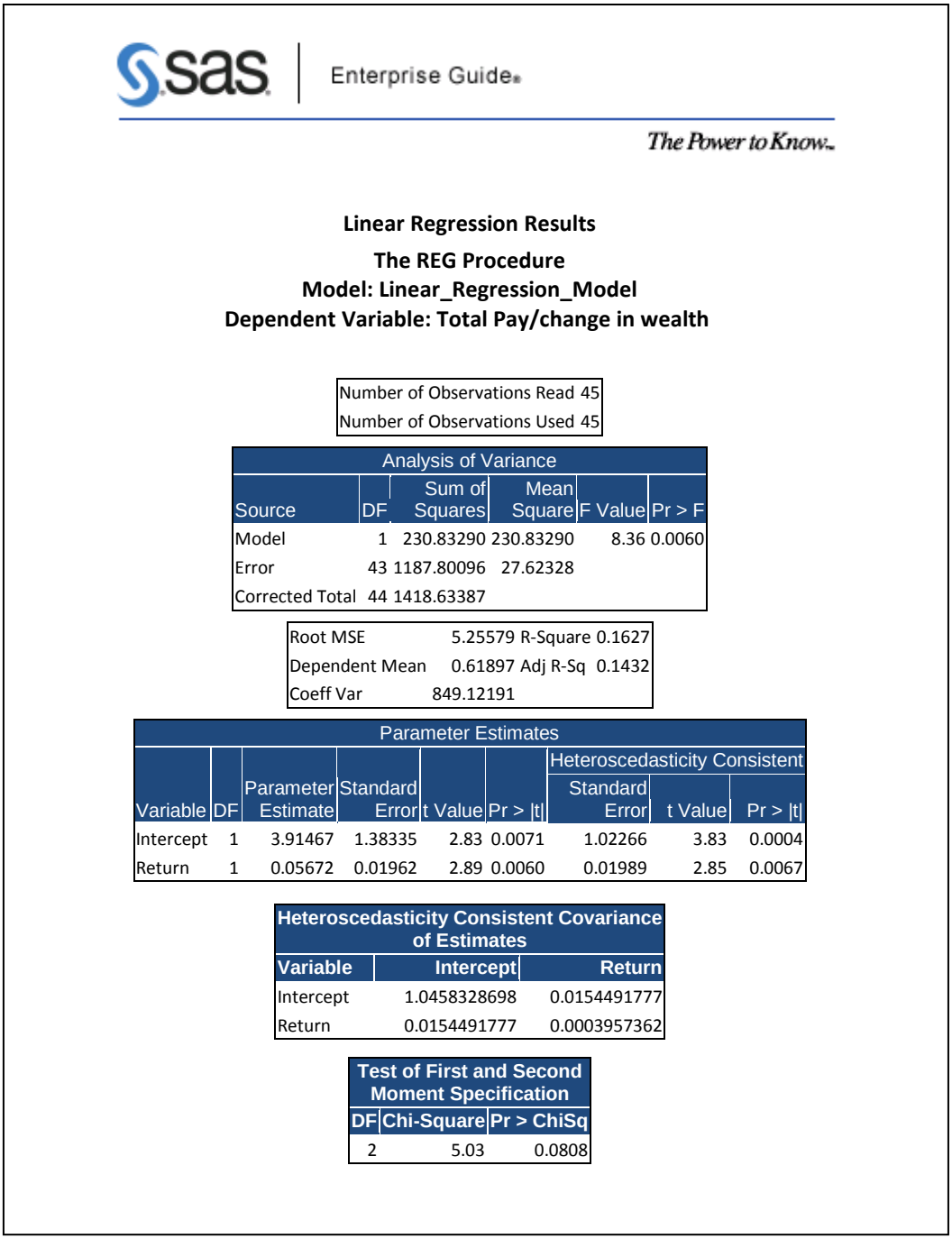
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	SH wealth created
Intercept	0.4810743706	-1.677317E-6
SH wealth created	-1.677317E-6	8.037308E-10

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	3.57	0.1679

10.9.3.11. 2008 Equity at stake



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Total Pay/change in wealth

Number of Observations Read	45
Number of Observations Used	45

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	230.83290	230.83290	8.36	0.0060
Error	43	1187.80096	27.62328		
Corrected Total	44	1418.63387			

Root MSE	5.25579	R-Square	0.1627
Dependent Mean	0.61897	Adj R-Sq	0.1432
Coeff Var	849.12191		

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
Intercept	1	3.91467	1.38335	2.83	0.0071	1.02266	3.83	0.0004
Return	1	0.05672	0.01962	2.89	0.0060	0.01989	2.85	0.0067

Heteroscedasticity Consistent Covariance of Estimates		
Variable	Intercept	Return
Intercept	1.0458328698	0.0154491777
Return	0.0154491777	0.0003957362

Test of First and Second Moment Specification		
DF	Chi-Square	Pr > ChiSq
2	5.03	0.0808

10.9.3.12. 2008 Elasticity

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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	45
Number of Observations Used	45

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	22395	22395	14.66	0.0004
Error	43	65680	1527.43835		
Corrected Total	44	88075			

Root MSE	39.08246	R-Square	0.2543
Dependent Mean	-30.28692	Adj R-Sq	0.2369
Coeff Var	-129.04070		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	2.17502	10.28667	0.21	0.8335	9.68459	0.22	0.8234
Return	1	0.55867	0.14590	3.83	0.0004	0.14900	3.75	0.0005

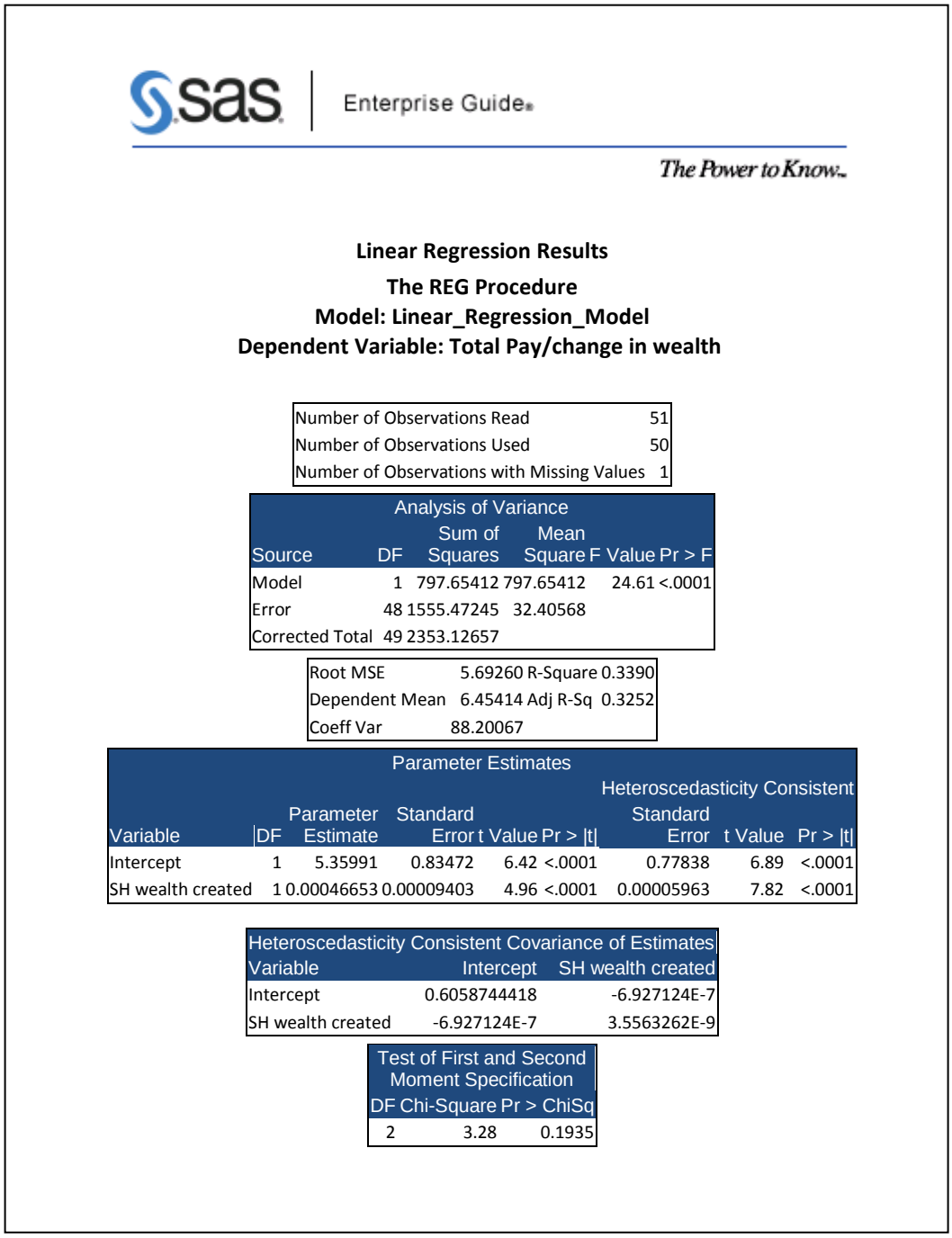
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	93.79126692	1.172992262
Return	1.172992262	0.0222015286

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	0.65	0.7209

10.9.3.13. 2009 Jensen & Murphy



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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	51
Number of Observations Used	50
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	797.65412	797.65412	24.61	<.0001
Error	48	1555.47245	32.40568		
Corrected Total	49	2353.12657			

Root MSE	5.69260	R-Square	0.3390
Dependent Mean	6.45414	Adj R-Sq	0.3252
Coeff Var	88.20067		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	5.35991	0.83472	6.42	<.0001	0.77838	6.89	<.0001
SH wealth created	1	0.00046653	0.00009403	4.96	<.0001	0.00005963	7.82	<.0001

Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	SH wealth created
Intercept	0.6058744418	-6.927124E-7
SH wealth created	-6.927124E-7	3.5563262E-9

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	3.28	0.1935

10.9.3.14. 2009 Equity at stake

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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	51
Number of Observations Used	50
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1199.86316	1199.86316	31.49	<.0001
Error	48	1828.80003	38.10000		
Corrected Total	49	3028.66319			

Root MSE	6.17252	R-Square	0.3962
Dependent Mean	7.05243	Adj R-Sq	0.3836
Coeff Var	87.52334		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	5.39460	0.92156	5.85	<.0001	0.68368	7.89	<.0001
Return	1	0.08942	0.01593	5.61	<.0001	0.01890	4.73	<.0001

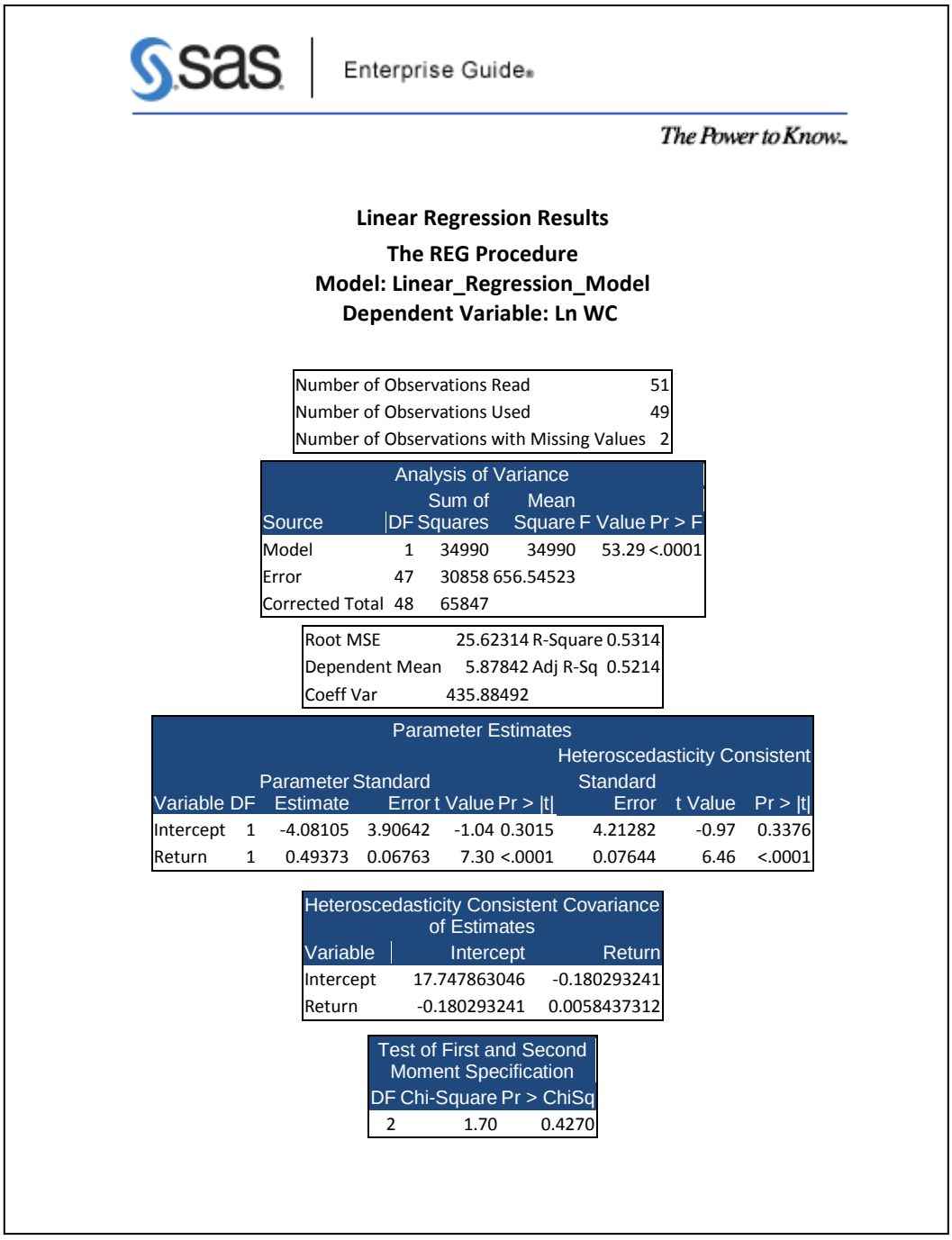
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	0.4674155428	0.0038114777
Return	0.0038114777	0.0003571836

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	7.01	0.0300

10.9.3.15. 2009 Elasticity



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	51
Number of Observations Used	49
Number of Observations with Missing Values	2

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	34990	34990	53.29	<.0001
Error	47	30858	656.54523		
Corrected Total	48	65847			

Root MSE	25.62314	R-Square	0.5314
Dependent Mean	5.87842	Adj R-Sq	0.5214
Coeff Var	435.88492		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	-4.08105	3.90642	-1.04	0.3015	4.21282	-0.97	0.3376
Return	1	0.49373	0.06763	7.30	<.0001	0.07644	6.46	<.0001

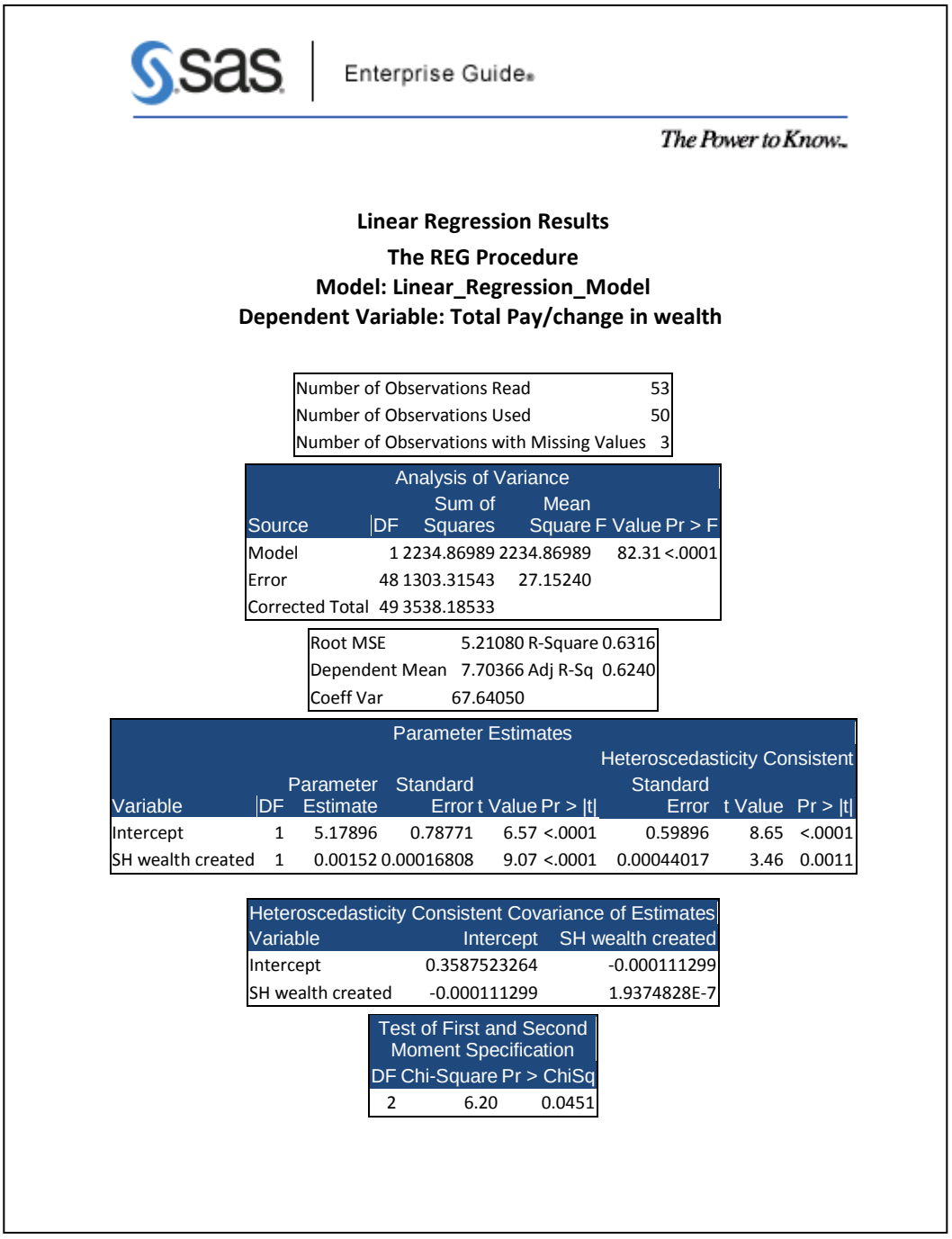
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	17.747863046	-0.180293241
Return	-0.180293241	0.0058437312

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	1.70	0.4270

10.9.3.16. 2010 Jensen & Murphy



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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	53
Number of Observations Used	50
Number of Observations with Missing Values	3

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	2234.86989	2234.86989	82.31	<.0001
Error	48	1303.31543	27.15240		
Corrected Total	49	3538.18533			

Root MSE	5.21080	R-Square	0.6316
Dependent Mean	7.70366	Adj R-Sq	0.6240
Coeff Var	67.64050		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	5.17896	0.78771	6.57	<.0001	0.59896	8.65	<.0001
SH wealth created	1	0.00152	0.00016808	9.07	<.0001	0.00044017	3.46	0.0011

Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	SH wealth created
Intercept	0.3587523264	-0.000111299
SH wealth created	-0.000111299	1.9374828E-7

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	6.20	0.0451

10.9.3.17. 2010 Equity at stake

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Linear Regression Results

The REG Procedure

Model: Linear_Regression_Model

Dependent Variable: Total Pay/change in wealth

Number of Observations Read	53
Number of Observations Used	52
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	1485.37443	1485.37443	24.79	<.0001
Error	50	2996.12398	59.92248		
Corrected Total	51	4481.49841			

Root MSE	7.74096	R-Square	0.3314
Dependent Mean	8.09545	Adj R-Sq	0.3181
Coeff Var	95.62108		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	5.65982	1.17969	4.80	<.0001	0.69766	8.11	<.0001
Return	1	0.13657	0.02743	4.98	<.0001	0.02910	4.69	<.0001

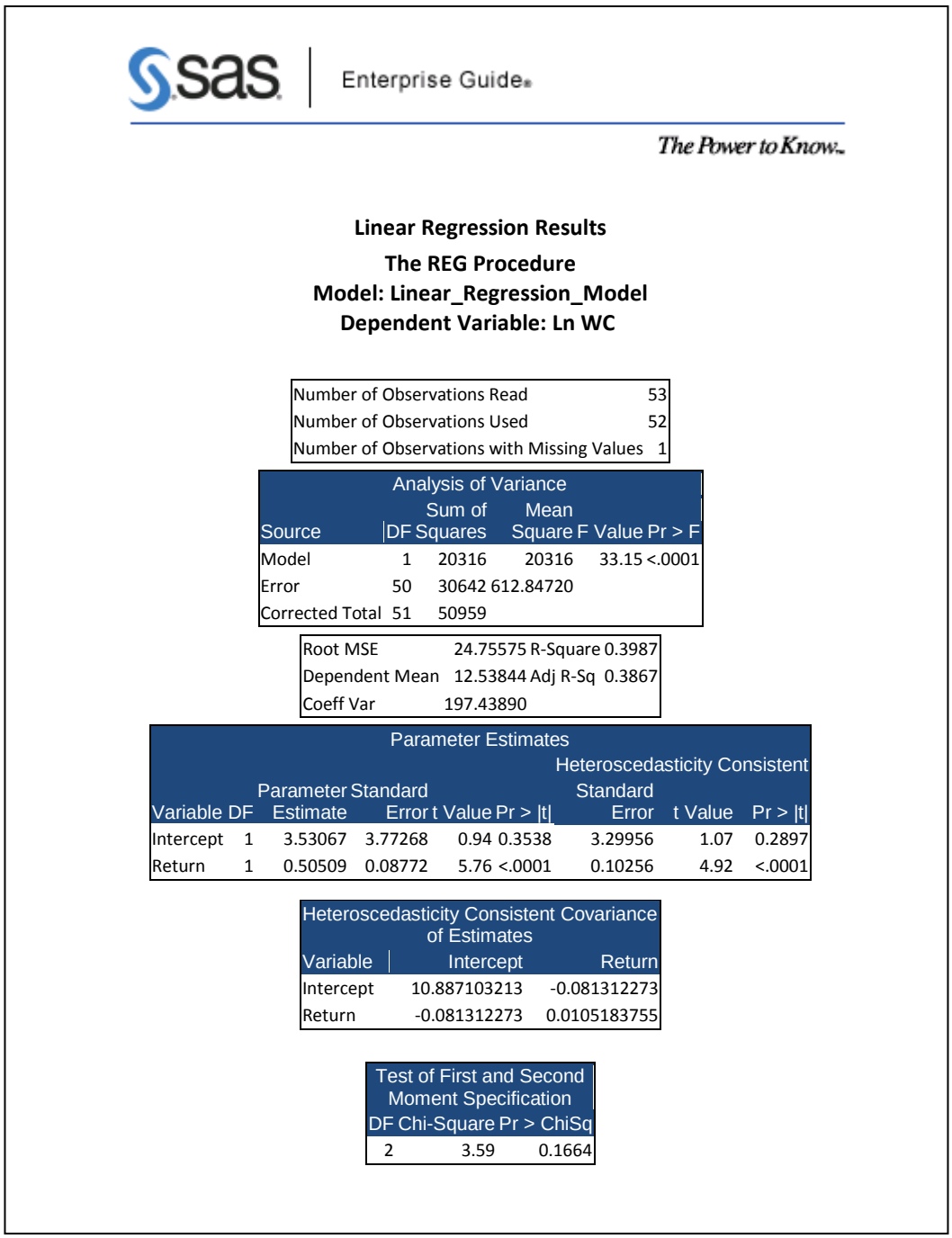
Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	0.4867279872	0.0098686683
Return	0.0098686683	0.0008467573

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	9.17	0.0102

10.9.3.18. 2010 Elasticity



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	53
Number of Observations Used	52
Number of Observations with Missing Values	1

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	1	20316	20316	33.15	<.0001
Error	50	30642	612.84720		
Corrected Total	51	50959			

Root MSE	24.75575	R-Square	0.3987
Dependent Mean	12.53844	Adj R-Sq	0.3867
Coeff Var	197.43890		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	3.53067	3.77268	0.94	0.3538	3.29956	1.07	0.2897
Return	1	0.50509	0.08772	5.76	<.0001	0.10256	4.92	<.0001

Heteroscedasticity Consistent Covariance of Estimates

Variable	Intercept	Return
Intercept	10.887103213	-0.081312273
Return	-0.081312273	0.0105183755

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
2	3.59	0.1664

10.9.4. Decompositions of the relationship

10.9.4.1. Flow compensation – Jensen & Murphy

Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Total flow

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	4459.05601	76.88028	11.92	<.0001
Error	230	1483.79081	6.45126		
Corrected Total	288	5942.84682			

Root MSE	2.53993	R-Square	0.7503
Dependent Mean	5.42182	Adj R-Sq	0.6874
Coeff Var	46.84655		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	1.66690	1.13589	1.47	0.1436	0.15647	10.65	<.0001
SH WC	1	0.00000284	0.00001123	0.25	0.8006	0.00001395	0.20	0.8389
ALK Abello	1	4.47650	1.60642	2.79	0.0058	0.37130	12.06	<.0001
Ambu	1	3.08567	1.60640	1.92	0.0560	0.47974	6.43	<.0001
Arkil	1	1.67506	1.85491	0.90	0.3674	0.15871	10.55	<.0001
Auriga	1	2.19571	1.70384	1.29	0.1988	0.46324	4.74	<.0001
Bioporto	1	-0.49209	1.60640	-0.31	0.7596	0.17961	-2.74	0.0066
Brdr Hartmann	1	2.24745	1.60640	1.40	0.1631	0.29054	7.74	<.0001
Brøndby IF	1	0.06255	2.12506	0.03	0.9765	0.33619	0.19	0.8526
Carlsberg	1	13.01377	1.61518	8.06	<.0001	1.78539	7.29	<.0001
Coloplast	1	6.99607	1.60716	4.35	<.0001	0.69218	10.11	<.0001
Dan Ejendomme	1	0.21361	1.60640	0.13	0.8943	0.18257	1.17	0.2432
Danisco	1	8.23010	1.60642	5.12	<.0001	0.35507	23.18	<.0001
Danske Bank	1	9.29468	1.53984	6.04	<.0001	0.75306	12.34	<.0001
Dantherm	1	1.65610	1.60640	1.03	0.3037	0.46929	3.53	0.0005
DFDS	1	6.68363	1.60640	4.16	<.0001	1.22759	5.44	<.0001
Diba Bank	1	0.86905	1.70384	0.51	0.6105	0.19794	4.39	<.0001
Djurslands Bank	1	0.19856	1.53801	0.13	0.8974	0.20276	0.98	0.3285
DLH	1	2.75910	1.60640	1.72	0.0872	0.24377	11.32	<.0001

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
DS Norden	1	14.66328	1.53801	9.53	<.0001	2.16780	6.76	<.0001
DSV	1	8.06699	1.60761	5.02	<.0001	0.44729	18.04	<.0001
FLSmidth	1	5.52978	1.53844	3.59	0.0004	0.32100	17.23	<.0001
Flügger	1	1.84225	1.85491	0.99	0.3217	0.19328	9.53	<.0001
Glunz & Jensen	1	1.01045	1.60640	0.63	0.5300	0.21363	4.73	<.0001
GN store Nord	1	6.48250	1.70416	3.80	0.0002	0.79301	8.17	<.0001
Greentech	1	0.48623	1.60641	0.30	0.7624	0.42951	1.13	0.2588
Gyldendal	1	2.11519	1.53801	1.38	0.1704	0.21286	9.94	<.0001
H+H	1	1.86521	1.53801	1.21	0.2265	0.34132	5.46	<.0001
IC Company	1	3.08702	1.70386	1.81	0.0713	0.79610	3.88	0.0001
Jeudan	1	2.64835	1.53801	1.72	0.0864	0.29414	9.00	<.0001
Kbh Lufthavne	1	6.25953	1.70385	3.67	0.0003	0.57122	10.96	<.0001
Lån og Spar Bank	1	1.09092	1.60640	0.68	0.4977	0.20701	5.27	<.0001
Lundbeck	1	7.54367	1.60648	4.70	<.0001	1.19979	6.29	<.0001
Mols Linien	1	1.86352	1.53801	1.21	0.2269	0.26737	6.97	<.0001
Netop Solutions	1	1.93388	2.12506	0.91	0.3638	0.33779	5.73	<.0001
NKT Holding	1	8.43789	1.60643	5.25	<.0001	1.65890	5.09	<.0001
Nordjyske Bank	1	2.27901	1.53801	1.48	0.1398	0.31526	7.23	<.0001
Novo Nordisk	1	14.05468	1.61974	8.68	<.0001	1.86730	7.53	<.0001
Novozymes	1	12.84020	1.53917	8.34	<.0001	4.62036	2.78	0.0059
NTR Holding	1	-0.68693	1.60640	-0.43	0.6693	0.24657	-2.79	0.0058
Royal Unibrew	1	3.70601	1.60642	2.31	0.0219	0.70430	5.26	<.0001
RTX	1	0.69683	1.85491	0.38	0.7075	0.21528	3.24	0.0014
Salling Bank	1	0.24280	1.53801	0.16	0.8747	0.18013	1.35	0.1790
Sanistål	1	2.46792	1.53801	1.60	0.1099	0.24773	9.96	<.0001
Satair	1	3.96108	1.53801	2.58	0.0106	0.68956	5.74	<.0001
Simcorp	1	2.91875	1.53801	1.90	0.0590	0.34124	8.55	<.0001
Sjælsø	1	3.68888	1.85499	1.99	0.0479	0.18479	19.96	<.0001
Skako	1	-0.17459	2.12506	-0.08	0.9346	0.37905	-0.46	0.6455
Skjern Bank	1	0.64673	1.53801	0.42	0.6745	0.23795	2.72	0.0071
SP Group	1	1.19400	1.53801	0.78	0.4384	0.20693	5.77	<.0001
Svendborg Sparkasse	1	0.67113	1.53801	0.44	0.6630	0.22547	2.98	0.0032
Thrane & Thrane	1	3.35071	1.70384	1.97	0.0504	0.81881	4.09	<.0001
Tivoli	1	1.77628	1.53801	1.15	0.2493	0.22563	7.87	<.0001
TK Development	1	3.69630	1.53801	2.40	0.0170	0.39625	9.33	<.0001
Topsil	1	1.84079	1.60640	1.15	0.2530	0.63172	2.91	0.0039
Vestas	1	9.26427	1.60660	5.77	<.0001	1.30510	7.10	<.0001
Vestfyns Bank	1	0.02263	1.53801	0.01	0.9883	0.17463	0.13	0.8970
Vestjydsk Bank	1	2.25271	1.60640	1.40	0.1622	0.38846	5.80	<.0001
Vordingborg Bank	1	-0.22085	1.53801	-0.14	0.8859	0.16863	-1.31	0.1916

10.9.4.2. Flow compensation – Equity at stake

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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Total flow

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	4472.01841	77.10377	12.06	<.0001
Error	230	1470.82841	6.39491		
Corrected Total	288	5942.84682			

Root MSE	2.52882	R-Square	0.7525
Dependent Mean	5.42182	Adj R-Sq	0.6901
Coeff Var	46.64147		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	1.61905	1.13140	1.43	0.1538	0.09872	16.40	<.0001
R	1	-0.00405	0.00280	-1.45	0.1495	0.00195	-2.07	0.0392
ALK Abello	1	4.47106	1.59936	2.80	0.0056	0.34003	13.15	<.0001
Ambu	1	3.25194	1.60346	2.03	0.0437	0.45907	7.08	<.0001
Arkil	1	1.65530	1.84683	0.90	0.3710	0.12408	13.34	<.0001
Auriga	1	2.29479	1.69775	1.35	0.1778	0.46029	4.99	<.0001
Bioporto	1	-0.34339	1.60266	-0.21	0.8305	0.16208	-2.12	0.0352
Brdr Hartmann	1	2.27271	1.59946	1.42	0.1567	0.29903	7.60	<.0001
Brøndby IF	1	0.14581	2.11654	0.07	0.9451	0.34868	0.42	0.6762
Carlsberg	1	13.29133	1.60760	8.27	<.0001	1.81023	7.34	<.0001
Coloplast	1	7.15656	1.60263	4.47	<.0001	0.69523	10.29	<.0001
Dan Ejendomme	1	0.32427	1.60119	0.20	0.8397	0.13936	2.33	0.0208
Danisco	1	8.31445	1.60048	5.19	<.0001	0.38892	21.38	<.0001
Danske Bank	1	9.37561	1.53283	6.12	<.0001	0.61153	15.33	<.0001
Dantherm	1	1.67539	1.59942	1.05	0.2960	0.44243	3.79	0.0002
DFDS	1	6.80097	1.60140	4.25	<.0001	1.18233	5.75	<.0001
Diba Bank	1	0.96444	1.69765	0.57	0.5705	0.15888	6.07	<.0001
Djurslands Bank	1	0.25103	1.53171	0.16	0.8700	0.14663	1.71	0.0883
DLH	1	2.87261	1.60130	1.79	0.0741	0.15102	19.02	<.0001
DS Norden	1	14.79916	1.53418	9.65	<.0001	2.12816	6.95	<.0001
DSV	1	8.31661	1.60751	5.17	<.0001	0.39008	21.32	<.0001

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
FLSmidth	1	5.75814	1.53875	3.74	0.0002	0.28978	19.87	<.0001
Flügger	1	1.89339	1.84714	1.03	0.3064	0.24586	7.70	<.0001
Glunz & Jensen	1	1.06876	1.59987	0.67	0.5048	0.19267	5.55	<.0001
GN store Nord	1	6.45946	1.69641	3.81	0.0002	0.64314	10.04	<.0001
Greentech	1	0.64510	1.60321	0.40	0.6878	0.41465	1.56	0.1211
Gyldendal	1	2.31697	1.53758	1.51	0.1332	0.20202	11.47	<.0001
H+H	1	1.83584	1.53140	1.20	0.2318	0.27469	6.68	<.0001
IC Company	1	3.24832	1.69996	1.91	0.0573	0.83519	3.89	0.0001
Jeudan	1	2.72593	1.53221	1.78	0.0765	0.27591	9.88	<.0001
Kbh Lufthavne	1	6.33319	1.69717	3.73	0.0002	0.51522	12.29	<.0001
Lån og Spar Bank	1	1.14543	1.59981	0.72	0.4747	0.19301	5.93	<.0001
Lundbeck	1	7.62029	1.60015	4.76	<.0001	1.18985	6.40	<.0001
Mols Linien	1	1.92473	1.53187	1.26	0.2102	0.29318	6.57	<.0001
Netop Solutions	1	1.86480	2.11630	0.88	0.3791	0.53225	3.50	0.0006
NKT Holding	1	8.57168	1.60214	5.35	<.0001	1.62523	5.27	<.0001
Nordjyske Bank	1	2.34927	1.53205	1.53	0.1265	0.28090	8.36	<.0001
Novo Nordisk	1	14.34415	1.53532	9.34	<.0001	1.85327	7.74	<.0001
Novozymes	1	12.98768	1.53401	8.47	<.0001	4.60394	2.82	0.0052
NTR Holding	1	-0.58196	1.60101	-0.36	0.7166	0.25089	-2.32	0.0212
Royal Unibrew	1	4.02430	1.61423	2.49	0.0134	0.80269	5.01	<.0001
RTX	1	0.80311	1.84826	0.43	0.6643	0.12402	6.48	<.0001
Salling Bank	1	0.27962	1.53149	0.18	0.8553	0.11870	2.36	0.0193
Sanistål	1	2.43403	1.53145	1.59	0.1134	0.23290	10.45	<.0001
Satair	1	4.10076	1.53431	2.67	0.0081	0.66090	6.20	<.0001
Simcorp	1	3.05784	1.53425	1.99	0.0474	0.28500	10.73	<.0001
Sjælsø	1	3.59179	1.84790	1.94	0.0531	0.28463	12.62	<.0001
Skako	1	-0.38645	2.12079	-0.18	0.8556	0.33919	-1.14	0.2557
Skjern Bank	1	0.65714	1.53129	0.43	0.6682	0.20584	3.19	0.0016
SP Group	1	1.29126	1.53275	0.84	0.4004	0.21418	6.03	<.0001
Svendborg Sparkasse	1	0.72962	1.53181	0.48	0.6343	0.20134	3.62	0.0004
Thrane & Thrane	1	3.40959	1.69687	2.01	0.0457	0.77413	4.40	<.0001
Tivoli	1	1.84758	1.53206	1.21	0.2291	0.22034	8.39	<.0001
TK Development	1	3.85889	1.53542	2.51	0.0126	0.34246	11.27	<.0001
Topsil	1	2.27841	1.62770	1.40	0.1629	0.67568	3.37	0.0009
Vestas	1	9.39897	1.60234	5.87	<.0001	1.37504	6.84	<.0001
Vestfyns Bank	1	0.07113	1.53164	0.05	0.9630	0.11394	0.62	0.5331
Vestjydsk Bank	1	2.26214	1.59938	1.41	0.1586	0.36809	6.15	<.0001
Vordingborg Bank	1	-0.19212	1.53140	-0.13	0.9003	0.11248	-1.71	0.0890

10.9.4.3. Change in value of stocks – Jensen & Murphy

Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Change in Vstocks

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	939.26158	16.19417	1.99	0.0002
Error	230	1868.71524	8.12485		
Corrected Total	288	2807.97682			

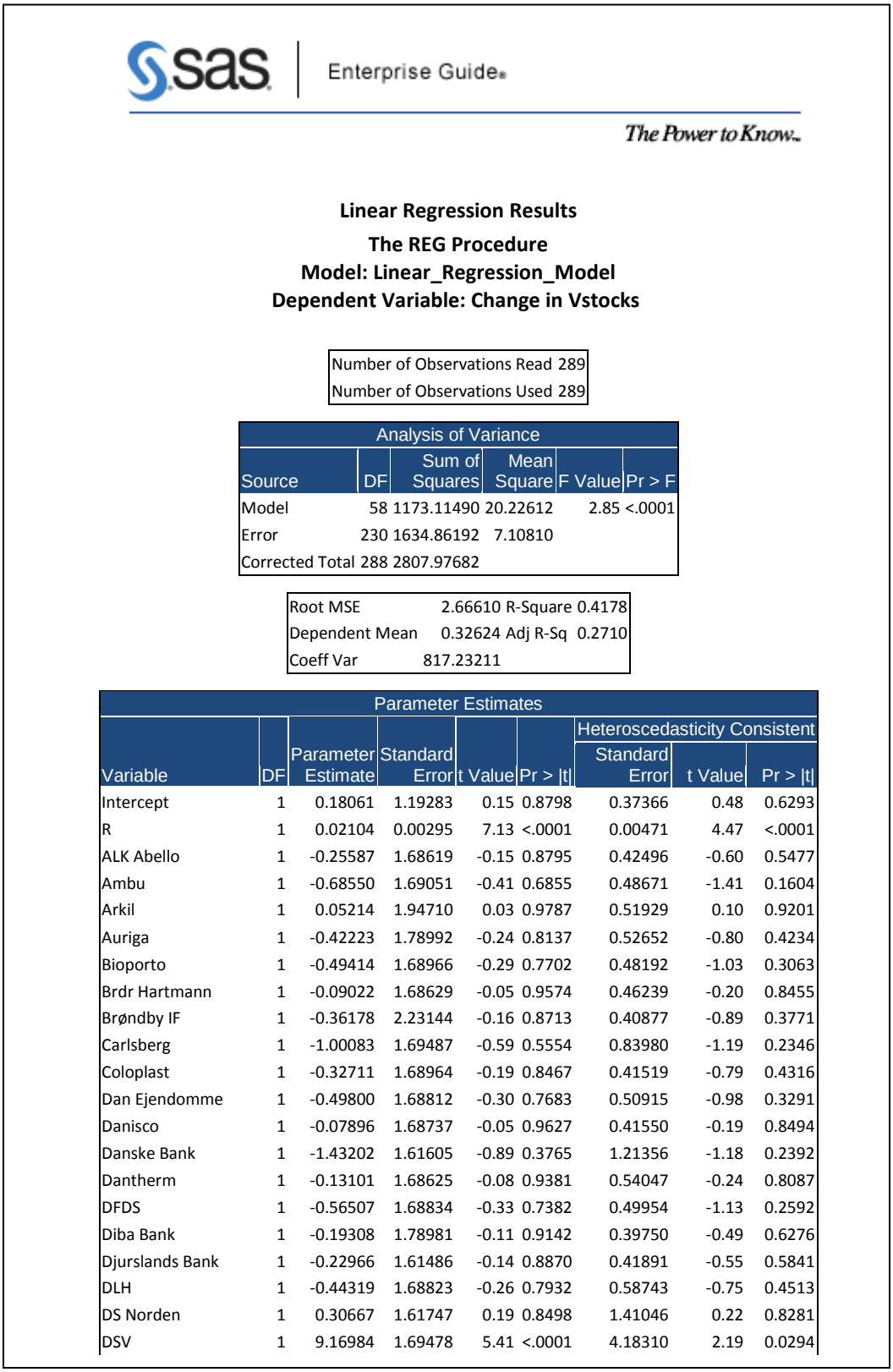
Root MSE	2.85041	R-Square	0.3345
Dependent Mean	0.32624	Adj R-Sq	0.1667
Coeff Var	873.72839		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	-0.06778	1.27474	-0.05	0.9576	0.06180	-1.10	0.2739
SH WC	1	0.00004997	0.00001260	3.97	<.0001	0.00001230	4.06	<.0001
ALK Abello	1	-0.23003	1.80279	-0.13	0.8986	0.21549	-1.07	0.2869
Ambu	1	0.16418	1.80276	0.09	0.9275	0.11724	1.40	0.1628
Arkil	1	-0.04447	2.08165	-0.02	0.9830	0.12081	-0.37	0.7132
Auriga	1	0.07967	1.91212	0.04	0.9668	0.07549	1.06	0.2924
Bioporto	1	0.27569	1.80276	0.15	0.8786	0.09526	2.89	0.0042
Brdr Hartmann	1	0.04481	1.80276	0.02	0.9802	0.08387	0.53	0.5936
Brøndby IF	1	0.06949	2.38483	0.03	0.9768	0.07159	0.97	0.3327
Carlsberg	1	-0.52755	1.81262	-0.29	0.7713	0.76761	-0.69	0.4926
Coloplast	1	0.22252	1.80361	0.12	0.9019	0.13935	1.60	0.1117
Dan Ejendomme	1	0.07492	1.80276	0.04	0.9669	0.06208	1.21	0.2287
Danisco	1	0.40801	1.80278	0.23	0.8212	0.44754	0.91	0.3629
Danske Bank	1	-0.57801	1.72807	-0.33	0.7383	0.43870	-1.32	0.1890
Dantherm	1	-0.02468	1.80276	-0.01	0.9891	0.09034	-0.27	0.7850
DFDS	1	0.03431	1.80276	0.02	0.9848	0.06556	0.52	0.6013
Diba Bank	1	0.29331	1.91212	0.15	0.8782	0.12138	2.42	0.0165
Djurslands Bank	1	0.04556	1.72601	0.03	0.9790	0.12560	0.36	0.7171
DLH	1	0.15474	1.80276	0.09	0.9317	0.25414	0.61	0.5432
DS Norden	1	1.02603	1.72601	0.59	0.5528	1.64277	0.62	0.5329
DSV	1	10.10720	1.80413	5.60	<.0001	4.28123	2.36	0.0191

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
FLSmidth	1	-0.09483	1.72650	-0.05	0.9562	0.24614	-0.39	0.7004
Flügger	1	-0.44854	2.08165	-0.22	0.8296	1.03302	-0.43	0.6645
Glunz & Jensen	1	0.04295	1.80276	0.02	0.9810	0.07030	0.61	0.5419
GN store Nord	1	0.36803	1.91247	0.19	0.8476	0.16575	2.22	0.0274
Greentech	1	0.08308	1.80277	0.05	0.9633	1.82288	0.05	0.9637
Gyldendal	1	0.05653	1.72601	0.03	0.9739	0.07580	0.75	0.4566
H+H	1	-0.12498	1.72601	-0.07	0.9423	0.15267	-0.82	0.4138
IC Company	1	0.08127	1.91213	0.04	0.9661	0.06509	1.25	0.2131
Jeudan	1	0.06927	1.72601	0.04	0.9680	0.12654	0.55	0.5846
Kbh Lufthavne	1	-0.18888	1.91212	-0.10	0.9214	0.33398	-0.57	0.5722
Lån og Spar Bank	1	0.07211	1.80276	0.04	0.9681	0.07647	0.94	0.3467
Lundbeck	1	-0.06028	1.80286	-0.03	0.9734	0.09763	-0.62	0.5376
Mols Linien	1	0.08694	1.72601	0.05	0.9599	0.06231	1.40	0.1643
Netop Solutions	1	0.08117	2.38483	0.03	0.9729	0.06196	1.31	0.1915
NKT Holding	1	-0.93523	1.80280	-0.52	0.6044	3.32739	-0.28	0.7789
Nordjyske Bank	1	0.16499	1.72601	0.10	0.9239	0.81942	0.20	0.8406
Novo Nordisk	1	-3.66653	1.81774	-2.02	0.0448	2.03470	-1.80	0.0729
Novozymes	1	0.45342	1.72731	0.26	0.7932	0.52160	0.87	0.3856
NTR Holding	1	0.06537	1.80276	0.04	0.9711	0.06181	1.06	0.2914
Royal Unibrew	1	6.69771	1.80278	3.72	0.0003	2.22042	3.02	0.0028
RTX	1	0.02118	2.08165	0.01	0.9919	0.08479	0.25	0.8030
Salling Bank	1	0.04999	1.72601	0.03	0.9769	0.08733	0.57	0.5676
Sanistål	1	-0.08279	1.72601	-0.05	0.9618	0.28514	-0.29	0.7718
Satair	1	0.41090	1.72601	0.24	0.8120	0.42628	0.96	0.3361
Simcorp	1	2.75579	1.72602	1.60	0.1117	3.58482	0.77	0.4428
Sjælsø	1	-0.65994	2.08174	-0.32	0.7515	0.52292	-1.26	0.2082
Skako	1	0.06584	2.38483	0.03	0.9780	0.06368	1.03	0.3023
Skjern Bank	1	-0.05845	1.72601	-0.03	0.9730	0.31721	-0.18	0.8540
SP Group	1	0.26197	1.72601	0.15	0.8795	1.53342	0.17	0.8645
Svendborg Sparkasse	1	0.06873	1.72601	0.04	0.9683	0.14426	0.48	0.6342
Thrane & Thrane	1	0.53023	1.91211	0.28	0.7818	0.85584	0.62	0.5362
Tivoli	1	0.06858	1.72601	0.04	0.9683	0.06228	1.10	0.2720
TK Development	1	-0.18413	1.72601	-0.11	0.9151	1.12347	-0.16	0.8700
Topsil	1	0.84581	1.80276	0.47	0.6394	0.31193	2.71	0.0072
Vestas	1	0.15668	1.80299	0.09	0.9308	0.72098	0.22	0.8282
Vestfyns Bank	1	0.05444	1.72601	0.03	0.9749	0.11278	0.48	0.6298
Vestjydsk Bank	1	0.05704	1.80277	0.03	0.9748	0.13134	0.43	0.6645
Vordingborg Bank	1	0.05542	1.72601	0.03	0.9744	0.07674	0.72	0.4709

10.9.4.4. Change in value of stocks – Equity at stake



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Change in Vstocks

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	1173.11490	20.22612	2.85	<.0001
Error	230	1634.86192	7.10810		
Corrected Total	288	2807.97682			

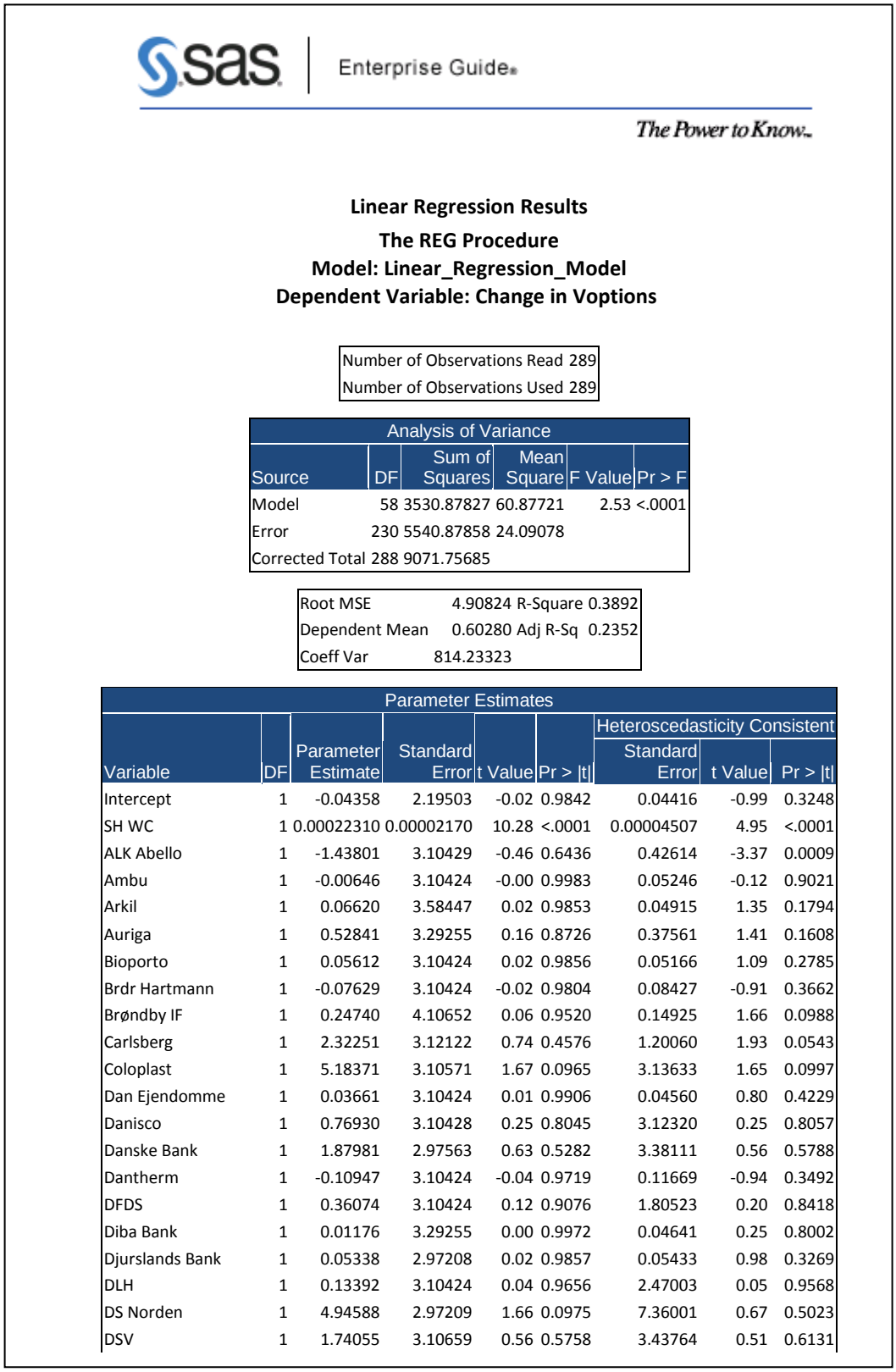
Root MSE	2.66610	R-Square	0.4178
Dependent Mean	0.32624	Adj R-Sq	0.2710
Coeff Var	817.23211		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	0.18061	1.19283	0.15	0.8798	0.37366	0.48	0.6293
R	1	0.02104	0.00295	7.13	<.0001	0.00471	4.47	<.0001
ALK Abello	1	-0.25587	1.68619	-0.15	0.8795	0.42496	-0.60	0.5477
Ambu	1	-0.68550	1.69051	-0.41	0.6855	0.48671	-1.41	0.1604
Arkil	1	0.05214	1.94710	0.03	0.9787	0.51929	0.10	0.9201
Auriga	1	-0.42223	1.78992	-0.24	0.8137	0.52652	-0.80	0.4234
Bioporto	1	-0.49414	1.68966	-0.29	0.7702	0.48192	-1.03	0.3063
Brdr Hartmann	1	-0.09022	1.68629	-0.05	0.9574	0.46239	-0.20	0.8455
Brøndby IF	1	-0.36178	2.23144	-0.16	0.8713	0.40877	-0.89	0.3771
Carlsberg	1	-1.00083	1.69487	-0.59	0.5554	0.83980	-1.19	0.2346
Coloplast	1	-0.32711	1.68964	-0.19	0.8467	0.41519	-0.79	0.4316
Dan Ejendomme	1	-0.49800	1.68812	-0.30	0.7683	0.50915	-0.98	0.3291
Danisco	1	-0.07896	1.68737	-0.05	0.9627	0.41550	-0.19	0.8494
Danske Bank	1	-1.43202	1.61605	-0.89	0.3765	1.21356	-1.18	0.2392
Dantherm	1	-0.13101	1.68625	-0.08	0.9381	0.54047	-0.24	0.8087
DFDS	1	-0.56507	1.68834	-0.33	0.7382	0.49954	-1.13	0.2592
Diba Bank	1	-0.19308	1.78981	-0.11	0.9142	0.39750	-0.49	0.6276
Djurslands Bank	1	-0.22966	1.61486	-0.14	0.8870	0.41891	-0.55	0.5841
DLH	1	-0.44319	1.68823	-0.26	0.7932	0.58743	-0.75	0.4513
DS Norden	1	0.30667	1.61747	0.19	0.8498	1.41046	0.22	0.8281
DSV	1	9.16984	1.69478	5.41	<.0001	4.18310	2.19	0.0294

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
FLSmidth	1	-1.07124	1.62229	-0.66	0.5097	0.67442	-1.59	0.1136
Flügger	1	-0.73558	1.94741	-0.38	0.7060	0.44668	-1.65	0.1010
Glunz & Jensen	1	-0.26029	1.68673	-0.15	0.8775	0.70455	-0.37	0.7121
GN store Nord	1	0.29751	1.78851	0.17	0.8680	0.77744	0.38	0.7023
Greentech	1	-0.78214	1.69025	-0.46	0.6440	1.28416	-0.61	0.5431
Gyldendal	1	-0.98056	1.62106	-0.60	0.5458	0.56035	-1.75	0.0815
H+H	1	0.01357	1.61454	0.01	0.9933	0.45583	0.03	0.9763
IC Company	1	-0.71293	1.79224	-0.40	0.6912	0.48971	-1.46	0.1468
Jeudan	1	-0.32748	1.61539	-0.20	0.8395	0.39385	-0.83	0.4066
Kbh Lufthavne	1	-0.60406	1.78931	-0.34	0.7360	0.70810	-0.85	0.3945
Lån og Spar Bank	1	-0.21072	1.68666	-0.12	0.9007	0.41142	-0.51	0.6090
Lundbeck	1	-0.36272	1.68702	-0.22	0.8300	0.38459	-0.94	0.3466
Mols Linien	1	-0.24003	1.61503	-0.15	0.8820	0.60372	-0.40	0.6913
Netop Solutions	1	0.43666	2.23119	0.20	0.8450	1.21250	0.36	0.7191
NKT Holding	1	-1.69177	1.68912	-1.00	0.3176	2.79043	-0.61	0.5449
Nordjyske Bank	1	-0.20168	1.61522	-0.12	0.9007	0.62387	-0.32	0.7468
Novo Nordisk	1	-2.24280	1.61867	-1.39	0.1672	1.64858	-1.36	0.1750
Novozymes	1	0.03116	1.61729	0.02	0.9846	0.64144	0.05	0.9613
NTR Holding	1	-0.47931	1.68792	-0.28	0.7767	0.57187	-0.84	0.4028
Royal Unibrew	1	5.09154	1.70187	2.99	0.0031	2.11190	2.41	0.0167
RTX	1	-0.54003	1.94860	-0.28	0.7819	1.06096	-0.51	0.6112
Salling Bank	1	-0.14175	1.61463	-0.09	0.9301	0.42116	-0.34	0.7367
Sanistål	1	0.07990	1.61459	0.05	0.9606	0.44639	0.18	0.8581
Satair	1	-0.31039	1.61760	-0.19	0.8480	0.43191	-0.72	0.4731
Simcorp	1	2.05381	1.61754	1.27	0.2055	3.23373	0.64	0.5260
Sjælsø	1	-0.25628	1.94822	-0.13	0.8955	0.49416	-0.52	0.6045
Skako	1	1.14951	2.23592	0.51	0.6077	0.47838	2.40	0.0171
Skjern Bank	1	-0.11888	1.61442	-0.07	0.9414	0.42087	-0.28	0.7778
SP Group	1	-0.24473	1.61596	-0.15	0.8798	1.12373	-0.22	0.8278
Svendborg Sparkasse	1	-0.23566	1.61497	-0.15	0.8841	0.39685	-0.59	0.5532
Thrane & Thrane	1	0.21933	1.78899	0.12	0.9025	0.78894	0.28	0.7813
Tivoli	1	-0.29824	1.61524	-0.18	0.8537	0.42086	-0.71	0.4793
TK Development	1	-1.03981	1.61877	-0.64	0.5213	0.74084	-1.40	0.1618
Topsil	1	-1.42320	1.71607	-0.83	0.4078	1.58098	-0.90	0.3690
Vestas	1	-0.69197	1.68933	-0.41	0.6825	0.71837	-0.96	0.3364
Vestfyns Bank	1	-0.19796	1.61479	-0.12	0.9025	0.41070	-0.48	0.6303
Vestjydsk Bank	1	-0.02320	1.68621	-0.01	0.9890	0.61509	-0.04	0.9699
Vordingborg Bank	1	-0.09467	1.61454	-0.06	0.9533	0.47449	-0.20	0.8420

10.9.4.5. Change in value of options – Jensen & Murphy



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Change in Voptions

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	3530.87827	60.87721	2.53	<.0001
Error	230	5540.87858	24.09078		
Corrected Total	288	9071.75685			

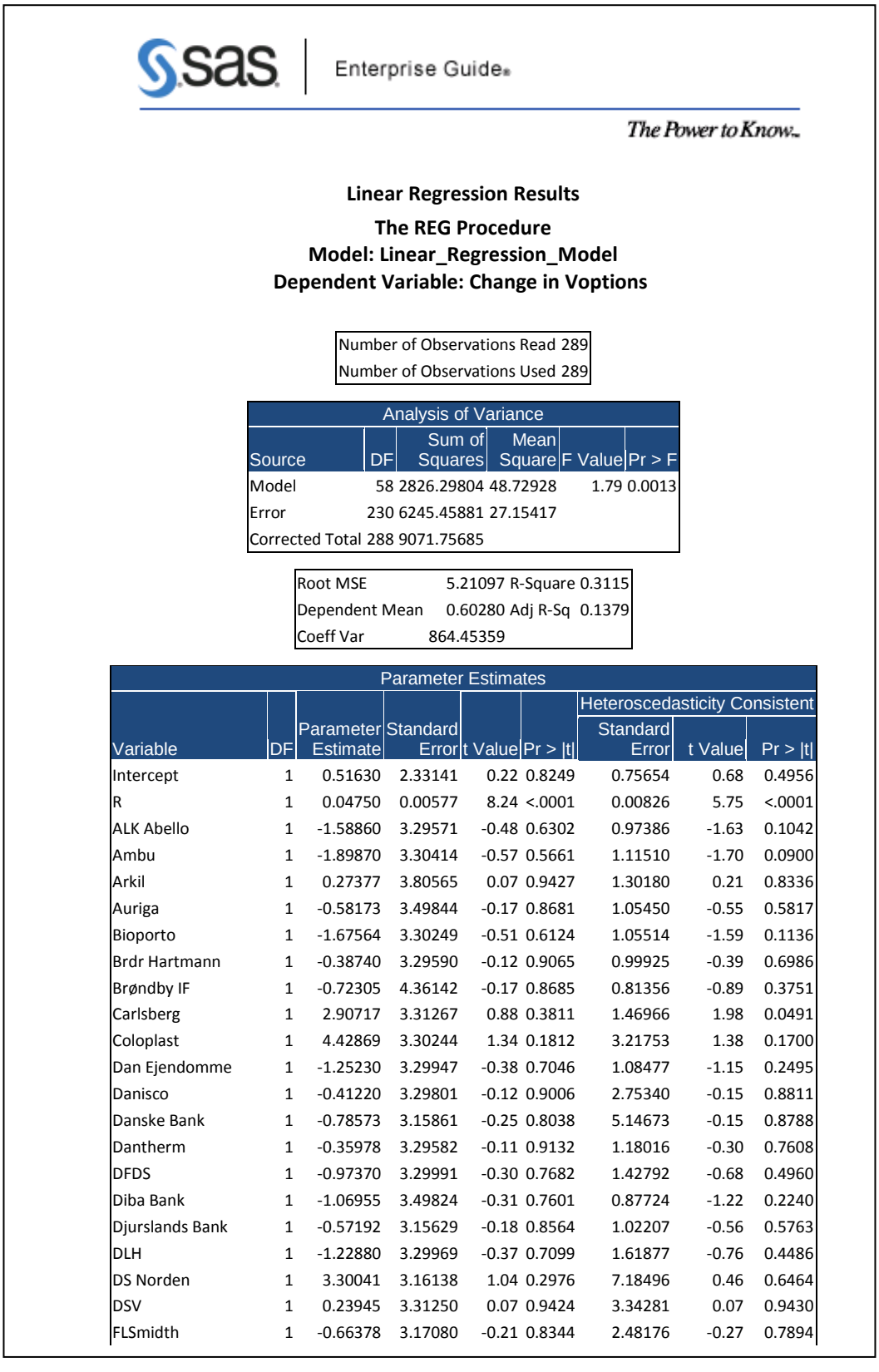
Root MSE	4.90824	R-Square	0.3892
Dependent Mean	0.60280	Adj R-Sq	0.2352
Coeff Var	814.23323		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	Heteroscedasticity Consistent t Value	Heteroscedasticity Consistent Pr > |t|
Intercept	1	-0.04358	2.19503	-0.02	0.9842	0.04416	-0.99	0.3248
SH WC	1	0.00022310	0.00002170	10.28	<.0001	0.00004507	4.95	<.0001
ALK Abello	1	-1.43801	3.10429	-0.46	0.6436	0.42614	-3.37	0.0009
Ambu	1	-0.00646	3.10424	-0.00	0.9983	0.05246	-0.12	0.9021
Arkil	1	0.06620	3.58447	0.02	0.9853	0.04915	1.35	0.1794
Auriga	1	0.52841	3.29255	0.16	0.8726	0.37561	1.41	0.1608
Bioporto	1	0.05612	3.10424	0.02	0.9856	0.05166	1.09	0.2785
Brdr Hartmann	1	-0.07629	3.10424	-0.02	0.9804	0.08427	-0.91	0.3662
Brøndby IF	1	0.24740	4.10652	0.06	0.9520	0.14925	1.66	0.0988
Carlsberg	1	2.32251	3.12122	0.74	0.4576	1.20060	1.93	0.0543
Coloplast	1	5.18371	3.10571	1.67	0.0965	3.13633	1.65	0.0997
Dan Ejendomme	1	0.03661	3.10424	0.01	0.9906	0.04560	0.80	0.4229
Danisco	1	0.76930	3.10428	0.25	0.8045	3.12320	0.25	0.8057
Danske Bank	1	1.87981	2.97563	0.63	0.5282	3.38111	0.56	0.5788
Dantherm	1	-0.10947	3.10424	-0.04	0.9719	0.11669	-0.94	0.3492
DFDS	1	0.36074	3.10424	0.12	0.9076	1.80523	0.20	0.8418
Diba Bank	1	0.01176	3.29255	0.00	0.9972	0.04641	0.25	0.8002
Djurslands Bank	1	0.05338	2.97208	0.02	0.9857	0.05433	0.98	0.3269
DLH	1	0.13392	3.10424	0.04	0.9656	2.47003	0.05	0.9568
DS Norden	1	4.94588	2.97209	1.66	0.0975	7.36001	0.67	0.5023
DSV	1	1.74055	3.10659	0.56	0.5758	3.43764	0.51	0.6131

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
FLSmidth	1	1.18030	2.97293	0.40	0.6917	2.25815	0.52	0.6017
Flügger	1	0.11776	3.58448	0.03	0.9738	0.10018	1.18	0.2410
Glunz & Jensen	1	-0.18794	3.10424	-0.06	0.9518	0.19227	-0.98	0.3294
GN store Nord	1	3.10768	3.29316	0.94	0.3463	1.81512	1.71	0.0882
Greentech	1	0.05828	3.10427	0.02	0.9850	0.08980	0.65	0.5170
Gyldendal	1	0.00309	2.97209	0.00	0.9992	0.04992	0.06	0.9506
H+H	1	-0.18559	2.97209	-0.06	0.9503	0.18988	-0.98	0.3294
IC Company	1	0.77970	3.29258	0.24	0.8130	1.69817	0.46	0.6466
Jeudan	1	-0.02381	2.97209	-0.01	0.9936	0.10949	-0.22	0.8281
Kbh Lufthavne	1	0.15585	3.29256	0.05	0.9623	0.65425	0.24	0.8119
Lån og Spar Bank	1	0.05233	3.10424	0.02	0.9866	0.04768	1.10	0.2736
Lundbeck	1	-0.90776	3.10441	-0.29	0.7702	0.40545	-2.24	0.0261
Mols Linien	1	-0.14343	2.97209	-0.05	0.9616	1.69160	-0.08	0.9325
Netop Solutions	1	0.05614	4.10652	0.01	0.9891	0.06639	0.85	0.3986
NKT Holding	1	0.64095	3.10431	0.21	0.8366	3.54955	0.18	0.8569
Nordjyske Bank	1	0.04958	2.97208	0.02	0.9867	0.06420	0.77	0.4407
Novo Nordisk	1	-4.64056	3.13003	-1.48	0.1396	2.71434	-1.71	0.0887
Novozymes	1	5.47828	2.97433	1.84	0.0668	3.67584	1.49	0.1375
NTR Holding	1	0.04103	3.10424	0.01	0.9895	0.04441	0.92	0.3566
Royal Unibrew	1	-1.52509	3.10428	-0.49	0.6237	2.62731	-0.58	0.5622
RTX	1	-0.27843	3.58447	-0.08	0.9382	0.14897	-1.87	0.0629
Salling Bank	1	0.04607	2.97208	0.02	0.9876	0.04469	1.03	0.3036
Sanistål	1	-0.04453	2.97209	-0.01	0.9881	0.38868	-0.11	0.9089
Satair	1	-0.01842	2.97208	-0.01	0.9951	0.23311	-0.08	0.9371
Simcorp	1	1.05935	2.97209	0.36	0.7218	1.55899	0.68	0.4975
Sjælsø	1	0.01012	3.58463	0.00	0.9977	0.08365	0.12	0.9038
Skako	1	0.10709	4.10653	0.03	0.9792	0.04852	2.21	0.0283
Skjern Bank	1	0.06679	2.97208	0.02	0.9821	0.05348	1.25	0.2130
SP Group	1	-0.03300	2.97208	-0.01	0.9912	0.99679	-0.03	0.9736
Svendborg Sparkasse	1	0.04603	2.97208	0.02	0.9877	0.04803	0.96	0.3389
Thrane & Thrane	1	-1.28053	3.29254	-0.39	0.6977	1.39586	-0.92	0.3599
Tivoli	1	0.03160	2.97208	0.01	0.9915	0.05768	0.55	0.5843
TK Development	1	-0.35834	2.97209	-0.12	0.9041	0.42610	-0.84	0.4012
Topsil	1	0.91236	3.10424	0.29	0.7691	1.21913	0.75	0.4550
Vestas	1	-1.50437	3.10464	-0.48	0.6285	3.02404	-0.50	0.6193
Vestfyns Bank	1	0.04572	2.97208	0.02	0.9877	0.04481	1.02	0.3087
Vestjydsk Bank	1	0.15266	3.10426	0.05	0.9608	0.13975	1.09	0.2758
Vordingborg Bank	1	0.04742	2.97208	0.02	0.9873	0.04476	1.06	0.2905

10.9.4.6. Change in value of options – Equity at stake



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Change in Voptions

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	2826.29804	48.72928	1.79	0.0013
Error	230	6245.45881	27.15417		
Corrected Total	288	9071.75685			

Root MSE	5.21097	R-Square	0.3115
Dependent Mean	0.60280	Adj R-Sq	0.1379
Coeff Var	864.45359		

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
Intercept	1	0.51630	2.33141	0.22	0.8249	0.75654	0.68	0.4956
R	1	0.04750	0.00577	8.24	<.0001	0.00826	5.75	<.0001
ALK Abello	1	-1.58860	3.29571	-0.48	0.6302	0.97386	-1.63	0.1042
Ambu	1	-1.89870	3.30414	-0.57	0.5661	1.11510	-1.70	0.0900
Arkil	1	0.27377	3.80565	0.07	0.9427	1.30180	0.21	0.8336
Auriga	1	-0.58173	3.49844	-0.17	0.8681	1.05450	-0.55	0.5817
Bioporto	1	-1.67564	3.30249	-0.51	0.6124	1.05514	-1.59	0.1136
Brdr Hartmann	1	-0.38740	3.29590	-0.12	0.9065	0.99925	-0.39	0.6986
Brøndby IF	1	-0.72305	4.36142	-0.17	0.8685	0.81356	-0.89	0.3751
Carlsberg	1	2.90717	3.31267	0.88	0.3811	1.46966	1.98	0.0491
Coloplast	1	4.42869	3.30244	1.34	0.1812	3.21753	1.38	0.1700
Dan Ejendomme	1	-1.25230	3.29947	-0.38	0.7046	1.08477	-1.15	0.2495
Danisco	1	-0.41220	3.29801	-0.12	0.9006	2.75340	-0.15	0.8811
Danske Bank	1	-0.78573	3.15861	-0.25	0.8038	5.14673	-0.15	0.8788
Dantherm	1	-0.35978	3.29582	-0.11	0.9132	1.18016	-0.30	0.7608
DFDS	1	-0.97370	3.29991	-0.30	0.7682	1.42792	-0.68	0.4960
Diba Bank	1	-1.06955	3.49824	-0.31	0.7601	0.87724	-1.22	0.2240
Djurslands Bank	1	-0.57192	3.15629	-0.18	0.8564	1.02207	-0.56	0.5763
DLH	1	-1.22880	3.29969	-0.37	0.7099	1.61877	-0.76	0.4486
DS Norden	1	3.30041	3.16138	1.04	0.2976	7.18496	0.46	0.6464
DSV	1	0.23945	3.31250	0.07	0.9424	3.34281	0.07	0.9430
FLSmidth	1	-0.66378	3.17080	-0.21	0.8344	2.48176	-0.27	0.7894

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
Flügger	1	-0.56604	3.80627	-0.15	0.8819	2.13892	-0.26	0.7915
Glunz & Jensen	1	-0.87241	3.29675	-0.26	0.7915	1.43501	-0.61	0.5438
GN store Nord	1	2.62424	3.49569	0.75	0.4536	1.19200	2.20	0.0287
Greentech	1	-1.96109	3.30364	-0.59	0.5534	1.78134	-1.10	0.2721
Gyldendal	1	-2.31686	3.16840	-0.73	0.4654	1.20505	-1.92	0.0558
H+H	1	0.10302	3.15566	0.03	0.9740	1.09587	0.09	0.9252
IC Company	1	-0.93688	3.50299	-0.27	0.7894	1.58074	-0.59	0.5540
Jeudan	1	-0.90789	3.15732	-0.29	0.7740	0.92595	-0.98	0.3279
Kbh Lufthavne	1	-0.83598	3.49726	-0.24	0.8113	1.22599	-0.68	0.4960
Lån og Spar Bank	1	-0.58498	3.29662	-0.18	0.8593	0.85335	-0.69	0.4937
Lundbeck	1	-1.42682	3.29732	-0.43	0.6656	0.85466	-1.67	0.0964
Mols Linien	1	-0.89621	3.15662	-0.28	0.7767	1.20426	-0.74	0.4575
Netop Solutions	1	0.85215	4.36091	0.20	0.8452	2.66599	0.32	0.7495
NKT Holding	1	-1.17019	3.30144	-0.35	0.7233	2.69085	-0.43	0.6641
Nordjyske Bank	1	-0.78022	3.15699	-0.25	0.8050	1.09129	-0.71	0.4754
Novo Nordisk	1	3.56363	3.16373	1.13	0.2612	2.27932	1.56	0.1193
Novozymes	1	5.11254	3.16103	1.62	0.1072	3.96257	1.29	0.1983
NTR Holding	1	-1.18630	3.29909	-0.36	0.7195	1.22761	-0.97	0.3349
Royal Unibrew	1	-5.06681	3.32635	-1.52	0.1291	2.62282	-1.93	0.0546
RTX	1	-1.55967	3.80858	-0.41	0.6825	2.37157	-0.66	0.5114
Salling Bank	1	-0.38718	3.15583	-0.12	0.9025	0.95503	-0.41	0.6855
Sanistål	1	0.29959	3.15575	0.09	0.9245	1.12672	0.27	0.7906
Satair	1	-1.63789	3.16165	-0.52	0.6049	0.95280	-1.72	0.0870
Simcorp	1	-0.48882	3.16153	-0.15	0.8773	1.15245	-0.42	0.6718
Sjælsø	1	0.74879	3.80784	0.20	0.8443	1.81557	0.41	0.6804
Skako	1	2.52225	4.37017	0.58	0.5644	0.96672	2.61	0.0097
Skjern Bank	1	-0.08035	3.15543	-0.03	0.9797	1.28003	-0.06	0.9500
SP Group	1	-1.17826	3.15844	-0.37	0.7095	0.92495	-1.27	0.2040
Svendborg Sparkasse	1	-0.64148	3.15650	-0.20	0.8391	0.96240	-0.67	0.5057
Thrane & Thrane	1	-1.99029	3.49664	-0.57	0.5698	1.10656	-1.80	0.0734
Tivoli	1	-0.78965	3.15702	-0.25	0.8027	0.87125	-0.91	0.3657
TK Development	1	-2.30704	3.16394	-0.73	0.4666	1.33032	-1.73	0.0842
Topsil	1	-4.19751	3.35410	-1.25	0.2120	2.32680	-1.80	0.0725
Vestas	1	-3.67237	3.30184	-1.11	0.2672	4.52794	-0.81	0.4182
Vestfyns Bank	1	-0.52427	3.15615	-0.17	0.8682	0.96586	-0.54	0.5878
Vestjydsk Bank	1	-0.08166	3.29574	-0.02	0.9803	1.59999	-0.05	0.9593
Vordingborg Bank	1	-0.29250	3.15566	-0.09	0.9262	1.07800	-0.27	0.7864

10.9.5. The relationship between pay and relative performance

10.9.5.1. Jensen & Murphy

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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: TPCW

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58	11841	204.15199	4.29	<.0001
Error	230	10944	47.58339		
Corrected Total	288	22785			

Root MSE	6.89807	R-Square	0.5197
Dependent Mean	6.35086	Adj R-Sq	0.3986
Coeff Var	108.61640		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	1.55715	3.08491	0.50	0.6142	0.19094	8.15	<.0001
Abnormal SHWC	1	0.00000210	3.11482E-7	6.74	<.0001	5.059054E-7	4.15	<.0001
ALK Abello	1	2.75602	4.36280	0.63	0.5282	0.48682	5.66	<.0001
Ambu	1	3.27842	4.36273	0.75	0.4531	0.43966	7.46	<.0001
Arkil	1	1.67577	5.03764	0.33	0.7397	0.21181	7.91	<.0001
Auriga	1	2.78321	4.62738	0.60	0.5481	0.82632	3.37	0.0009
Bioporto	1	-0.15951	4.36272	-0.04	0.9709	0.24633	-0.65	0.5179
Brdr Hartmann	1	2.21419	4.36272	0.51	0.6123	0.34444	6.43	<.0001
Brøndby IF	1	0.39714	5.77134	0.07	0.9452	0.51617	0.77	0.4424
Carlsberg	1	16.40428	4.37895	3.75	0.0002	2.64205	6.21	<.0001
Coloplast	1	13.40251	4.36284	3.07	0.0024	3.69976	3.62	0.0004
Dan Ejendomme	1	0.32984	4.36272	0.08	0.9398	0.21263	1.55	0.1222
Danisco	1	9.27791	4.36274	2.13	0.0345	3.88069	2.39	0.0176
Danske Bank	1	9.06179	4.17725	2.17	0.0311	6.28271	1.44	0.1506
Dantherm	1	1.49746	4.36272	0.34	0.7317	0.51868	2.89	0.0043
DFDS	1	7.04833	4.36274	1.62	0.1076	1.42946	4.93	<.0001
Diba Bank	1	1.22476	4.62737	0.26	0.7915	0.21686	5.65	<.0001
Djurslands Bank	1	0.29538	4.17699	0.07	0.9437	0.22679	1.30	0.1941
DLH	1	2.98911	4.36273	0.69	0.4939	2.60426	1.15	0.2523
DS Norden	1	19.81091	4.17855	4.74	<.0001	7.85835	2.52	0.0124
DSV	1	20.71993	4.36407	4.75	<.0001	5.28590	3.92	0.0001

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
FLSmidth	1	6.04458	4.18268	1.45	0.1498	2.81630	2.15	0.0329
Flügger	1	1.40636	5.03764	0.28	0.7804	1.07597	1.31	0.1925
Glunz & Jensen	1	0.86028	4.36272	0.20	0.8439	0.31547	2.73	0.0069
GN store Nord	1	9.29018	4.62742	2.01	0.0459	1.67370	5.55	<.0001
Greentech	1	0.37199	4.36274	0.09	0.9321	1.83159	0.20	0.8392
Gyldendal	1	2.18151	4.17700	0.52	0.6020	0.23599	9.24	<.0001
H+H	1	1.53388	4.17699	0.37	0.7138	0.28456	5.39	<.0001
IC Company	1	4.14195	4.62737	0.90	0.3717	2.19608	1.89	0.0605
Jeudan	1	2.76989	4.17700	0.66	0.5079	0.38206	7.25	<.0001
Kbh Lufthavne	1	6.19593	4.62739	1.34	0.1819	0.84005	7.38	<.0001
Lån og Spar Bank	1	1.23338	4.36272	0.28	0.7777	0.28358	4.35	<.0001
Lundbeck	1	8.06469	4.36566	1.85	0.0660	1.03875	7.76	<.0001
Mols Linien	1	1.71427	4.17700	0.41	0.6819	1.82119	0.94	0.3475
Netop Solutions	1	2.05500	5.77134	0.36	0.7221	0.41102	5.00	<.0001
NKT Holding	1	7.63833	4.36288	1.75	0.0813	6.28467	1.22	0.2255
Nordjyske Bank	1	2.49861	4.17699	0.60	0.5503	0.77382	3.23	0.0014
Novo Nordisk	1	8.66246	4.41161	1.96	0.0508	4.78705	1.81	0.0717
Novozymes	1	19.58100	4.17814	4.69	<.0001	5.59598	3.50	0.0006
NTR Holding	1	-0.58111	4.36272	-0.13	0.8942	0.27064	-2.15	0.0328
Royal Unibrew	1	8.89812	4.36281	2.04	0.0425	3.42464	2.60	0.0100
RTX	1	0.41354	5.03764	0.08	0.9346	0.20215	2.05	0.0419
Salling Bank	1	0.33895	4.17699	0.08	0.9354	0.20513	1.65	0.0998
Sanistål	1	2.29777	4.17699	0.55	0.5828	0.72090	3.19	0.0016
Satair	1	4.35233	4.17699	1.04	0.2985	0.90435	4.81	<.0001
Simcorp	1	6.70577	4.17703	1.61	0.1098	5.03997	1.33	0.1847
Sjælsø	1	2.65041	5.03764	0.53	0.5993	0.99968	2.65	0.0086
Skako	1	-0.04511	5.77134	-0.01	0.9938	0.37692	-0.12	0.9048
Skjern Bank	1	0.63934	4.17699	0.15	0.8785	0.35022	1.83	0.0692
SP Group	1	1.41269	4.17699	0.34	0.7355	2.51198	0.56	0.5744
Svendborg Sparkasse	1	0.79344	4.17699	0.19	0.8495	0.29238	2.71	0.0072
Thrane & Thrane	1	2.60690	4.62737	0.56	0.5737	1.62944	1.60	0.1110
Tivoli	1	1.91580	4.17699	0.46	0.6469	0.25155	7.62	<.0001
TK Development	1	3.05624	4.17700	0.73	0.4651	1.52777	2.00	0.0466
Topsil	1	3.52217	4.36275	0.81	0.4203	1.35115	2.61	0.0097
Vestas	1	3.56770	4.39744	0.81	0.4180	3.57588	1.00	0.3195
Vestfyns Bank	1	0.12300	4.17699	0.03	0.9765	0.20514	0.60	0.5494
Vestjydsk Bank	1	2.35862	4.36273	0.54	0.5893	0.39223	6.01	<.0001
Vordingborg Bank	1	-0.12161	4.17699	-0.03	0.9768	0.19928	-0.61	0.5423

10.9.5.2. Equity at stake

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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: TPCW

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	59	13076	221.62318	5.23	<.0001
Error	229	9709.22738	42.39837		
Corrected Total	288	22785			

Root MSE	6.51140	R-Square	0.5739
Dependent Mean	6.35086	Adj R-Sq	0.4641
Coeff Var	102.52795		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	2.26515	2.95518	0.77	0.4442	1.35369	1.67	0.0956
R	1	0.06386	0.00948	6.74	<.0001	0.01597	4.00	<.0001
Market Return	1	0.00159	0.01548	0.10	0.9185	0.01798	0.09	0.9298
ALK Abello	1	2.65779	4.12943	0.64	0.5205	1.43185	1.86	0.0647
Ambu	1	0.70182	4.14210	0.17	0.8656	1.77536	0.40	0.6930
Arkil	1	2.02075	4.77103	0.42	0.6723	1.85951	1.09	0.2783
Auriga	1	1.34525	4.40367	0.31	0.7603	1.80696	0.74	0.4573
Bioporto	1	-2.45872	4.16076	-0.59	0.5551	1.72709	-1.42	0.1559
Brdr Hartmann	1	1.82702	4.13021	0.44	0.6586	1.46711	1.25	0.2143
Brøndby IF	1	-0.93580	5.44993	-0.17	0.8638	1.21757	-0.77	0.4429
Carlsberg	1	15.23430	4.15480	3.67	0.0003	3.39936	4.48	<.0001
Coloplast	1	11.28947	4.13791	2.73	0.0069	4.00060	2.82	0.0052
Dan Ejendomme	1	-1.38716	4.14031	-0.34	0.7379	1.71470	-0.81	0.4194
Danisco	1	7.86240	4.13871	1.90	0.0587	3.13873	2.50	0.0129
Danske Bank	1	7.19652	3.96486	1.82	0.0708	5.88485	1.22	0.2226
Dantherm	1	1.21860	4.13168	0.29	0.7683	1.87214	0.65	0.5158
DFDS	1	5.30205	4.14176	1.28	0.2018	1.55476	3.41	0.0008
Diba Bank	1	-0.27929	4.37514	-0.06	0.9492	1.35206	-0.21	0.8365
Djurslands Bank	1	-0.51929	3.95576	-0.13	0.8957	1.54826	-0.34	0.7376
DLH	1	1.24932	4.15049	0.30	0.7637	1.87617	0.67	0.5062
DS Norden	1	18.45058	3.97398	4.64	<.0001	7.13475	2.59	0.0103
DSV	1	17.76235	4.15443	4.28	<.0001	5.18523	3.43	0.0007
FLSmidth	1	4.08035	4.00131	1.02	0.3089	2.52340	1.62	0.1073
Flügger	1	0.64757	4.78726	0.14	0.8925	2.19763	0.29	0.7685
Glunz & Jensen	1	-0.02564	4.13643	-0.01	0.9951	2.14314	-0.01	0.9905
GN store Nord	1	9.41799	4.38279	2.15	0.0327	1.30243	7.23	<.0001

Parameter Estimates								
						Heteroscedasticity Consistent		
		Parameter	Standard			Standard		
Variable	DF	Estimate	Error	t Value	Pr > |t|	Error	t Value	Pr > |t|
Greentech	1	-2.04655	4.15870	-0.49	0.6231	1.67068	-1.22	0.2218
Gyldendal	1	-0.92600	3.99462	-0.23	0.8169	1.94514	-0.48	0.6345
H+H	1	1.97103	3.94736	0.50	0.6180	1.68032	1.17	0.2420
IC Company	1	1.64407	4.39973	0.37	0.7090	2.12250	0.77	0.4394
Jeudan	1	1.52568	3.96012	0.39	0.7004	1.44310	1.06	0.2915
Kbh Lufthavne	1	4.93050	4.38521	1.12	0.2620	2.25143	2.19	0.0295
Lån og Spar Bank	1	0.37987	4.12981	0.09	0.9268	1.34070	0.28	0.7772
Lundbeck	1	5.84204	4.12166	1.42	0.1577	1.61829	3.61	0.0004
Mols Linien	1	0.82117	3.95725	0.21	0.8358	1.48264	0.55	0.5802
Netop Solutions	1	3.13753	5.45147	0.58	0.5655	3.37514	0.93	0.3536
NKT Holding	1	5.75897	4.15326	1.39	0.1669	4.40489	1.31	0.1924
Nordjyske Bank	1	1.40141	3.95881	0.35	0.7237	1.34852	1.04	0.2998
Novo Nordisk	1	15.71315	3.98114	3.95	0.0001	3.26480	4.81	<.0001
Novozymes	1	18.17509	3.97287	4.57	<.0001	5.82107	3.12	0.0020
NTR Holding	1	-2.20957	4.13907	-0.53	0.5940	1.83501	-1.20	0.2298
Royal Unibrew	1	4.09831	4.18422	0.98	0.3284	2.92947	1.40	0.1632
RTX	1	-1.24076	4.79017	-0.26	0.7959	3.42846	-0.36	0.7178
Salling Bank	1	-0.22050	3.95342	-0.06	0.9556	1.48103	-0.15	0.8818
Sanistål	1	2.83140	3.94716	0.72	0.4739	1.56147	1.81	0.0711
Satair	1	2.19847	3.97611	0.55	0.5809	1.73383	1.27	0.2061
Simcorp	1	4.66743	3.97445	1.17	0.2415	4.11585	1.13	0.2580
Sjælsø	1	4.11244	4.76604	0.86	0.3891	2.08284	1.97	0.0495
Skako	1	3.25932	5.46667	0.60	0.5516	1.67907	1.94	0.0535
Skjern Bank	1	0.48265	3.95029	0.12	0.9029	1.68427	0.29	0.7747
SP Group	1	-0.09350	3.96427	-0.02	0.9812	1.70260	-0.05	0.9563
Svendborg Sparkasse	1	-0.11533	3.95673	-0.03	0.9768	1.44199	-0.08	0.9363
Thrane & Thrane	1	1.66656	4.37776	0.38	0.7038	1.51388	1.10	0.2721
Tivoli	1	0.79385	3.95896	0.20	0.8413	1.36416	0.58	0.5612
TK Development	1	0.55607	3.97683	0.14	0.8889	1.78320	0.31	0.7554
Topsil	1	-3.24284	4.30219	-0.75	0.4518	3.45223	-0.94	0.3485
Vestas	1	5.08794	4.15854	1.22	0.2224	5.47501	0.93	0.3537
Vestfyns Bank	1	-0.62047	3.95512	-0.16	0.8755	1.48050	-0.42	0.6755
Vestjydsk Bank	1	2.19026	4.13079	0.53	0.5965	2.24406	0.98	0.3301
Vordingborg Bank	1	-0.55174	3.95235	-0.14	0.8891	1.61573	-0.34	0.7331

10.9.5.3. Elasticity

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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	59	242434	4109.04246	4.77	<.0001
Error	229	197421	862.10204		
Corrected Total	288	439855			

Root MSE	29.36157	R-Square	0.5512
Dependent Mean	7.34465	Adj R-Sq	0.4355
Coeff Var	399.76810		

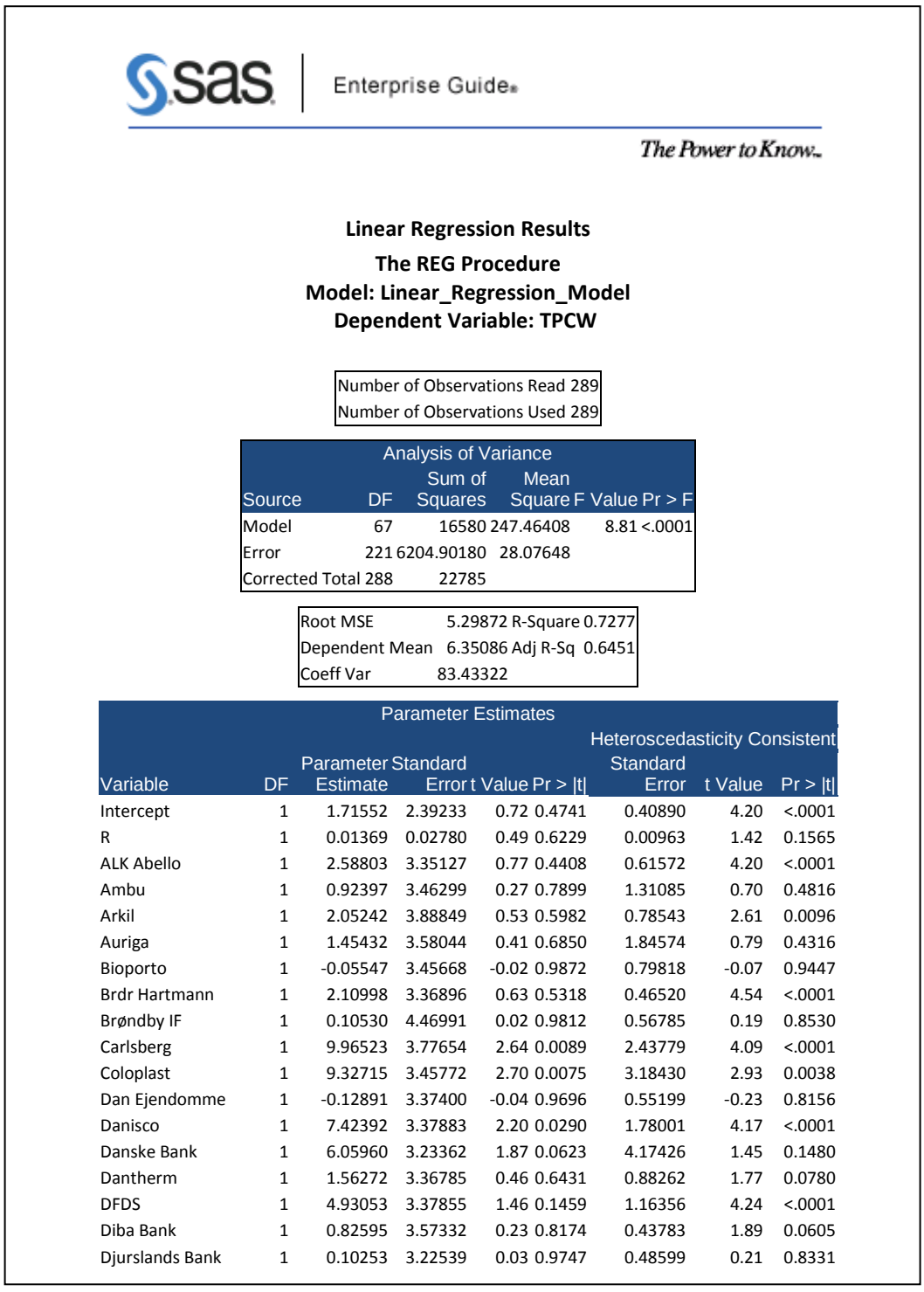
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	0.98416	13.32565	0.07	0.9412	13.74826	0.07	0.9430
R	1	0.43728	0.04274	10.23	<.0001	0.05466	8.00	<.0001
Market Return	1	0.09502	0.06981	1.36	0.1748	0.08022	1.18	0.2374
ALK Abello	1	-20.84317	18.62065	-1.12	0.2642	15.60667	-1.34	0.1830
Ambu	1	-6.39522	18.67778	-0.34	0.7324	15.54648	-0.41	0.6812
Arkil	1	0.99692	21.51380	0.05	0.9631	16.27599	0.06	0.9512
Auriga	1	-0.89341	19.85725	-0.04	0.9642	18.39718	-0.05	0.9613
Bioporto	1	0.89175	18.76194	0.05	0.9621	16.51980	0.05	0.9570
Brdr Hartmann	1	7.12912	18.62417	0.38	0.7022	17.02661	0.42	0.6758
Brøndby IF	1	-1.68093	24.57514	-0.07	0.9455	28.83477	-0.06	0.9536
Carlsberg	1	1.06587	18.73506	0.06	0.9547	14.02005	0.08	0.9395
Coloplast	1	18.59047	18.65891	1.00	0.3201	16.47436	1.13	0.2603
Dan Ejendomme	1	-0.13926	18.66972	-0.01	0.9941	15.93899	-0.01	0.9930
Danisco	1	-9.97287	18.66247	-0.53	0.5936	19.73974	-0.51	0.6139
Danske Bank	1	-15.53008	17.87857	-0.87	0.3860	22.14726	-0.70	0.4839
Dantherm	1	11.95650	18.63081	0.64	0.5217	18.93234	0.63	0.5283
DFDS	1	-6.14542	18.67623	-0.33	0.7424	20.82980	-0.30	0.7682
Diba Bank	1	6.67641	19.72864	0.34	0.7354	14.10209	0.47	0.6364
Djurslands Bank	1	2.22377	17.83752	0.12	0.9009	14.29578	0.16	0.8765
DLH	1	-9.22125	18.71561	-0.49	0.6227	19.80336	-0.47	0.6419
DS Norden	1	6.37646	17.91968	0.36	0.7223	18.39437	0.35	0.7292
DSV	1	8.03794	18.73336	0.43	0.6683	15.82397	0.51	0.6120

Parameter Estimates								
						Heteroscedasticity Consistent		
		Parameter	Standard			Standard		
Variable	DF	Estimate	Error	t Value	Pr > |t|	Error	t Value	Pr > |t|
FLSmidth	1	0.86887	18.04291	0.05	0.9616	15.22573	0.06	0.9545
Flügger	1	-5.90596	21.58697	-0.27	0.7846	15.40492	-0.38	0.7018
Glunz & Jensen	1	-1.56313	18.65221	-0.08	0.9333	16.46575	-0.09	0.9245
GN store Nord	1	25.44235	19.76312	1.29	0.1993	17.68568	1.44	0.1516
Greentech	1	-7.35934	18.75262	-0.39	0.6951	18.26071	-0.40	0.6873
Gyldendal	1	-19.91830	18.01278	-1.11	0.2700	15.75657	-1.26	0.2075
H+H	1	-7.78067	17.79964	-0.44	0.6624	17.50584	-0.44	0.6571
IC Company	1	-13.29768	19.83949	-0.67	0.5034	27.97691	-0.48	0.6350
Jeudan	1	-1.45772	17.85721	-0.08	0.9350	14.47690	-0.10	0.9199
Kbh Lufthavne	1	11.93909	19.77403	0.60	0.5466	25.95748	0.46	0.6460
Lån og Spar Bank	1	2.75052	18.62238	0.15	0.8827	14.19111	0.19	0.8465
Lundbeck	1	-3.78068	18.58563	-0.20	0.8390	13.94144	-0.27	0.7865
Mols Linien	1	-4.09492	17.84426	-0.23	0.8187	17.91354	-0.23	0.8194
Netop Solutions	1	33.38401	24.58209	1.36	0.1758	26.40376	1.26	0.2074
NKT Holding	1	-7.59069	18.72812	-0.41	0.6856	20.40333	-0.37	0.7102
Nordjyske Bank	1	-1.49971	17.85127	-0.08	0.9331	13.97703	-0.11	0.9146
Novo Nordisk	1	1.97924	17.95198	0.11	0.9123	14.41839	0.14	0.8909
Novozymes	1	16.68888	17.91469	0.93	0.3525	22.82472	0.73	0.4654
NTR Holding	1	26.00684	18.66413	1.39	0.1648	24.94019	1.04	0.2982
Royal Unibrew	1	16.29672	18.86771	0.86	0.3886	18.19613	0.90	0.3714
RTX	1	-36.07883	21.60010	-1.67	0.0962	29.04068	-1.24	0.2154
Salling Bank	1	3.46051	17.82697	0.19	0.8463	14.34993	0.24	0.8097
Sanistål	1	6.03500	17.79875	0.34	0.7349	15.22416	0.40	0.6922
Satair	1	3.39072	17.92927	0.19	0.8502	15.12178	0.22	0.8228
Simcorp	1	-0.25037	17.92181	-0.01	0.9889	16.32178	-0.02	0.9878
Sjælsø	1	-7.87531	21.49131	-0.37	0.7144	13.82980	-0.57	0.5696
Skako	1	28.51709	24.65060	1.16	0.2485	14.05543	2.03	0.0436
Skjern Bank	1	1.89124	17.81285	0.11	0.9155	14.08490	0.13	0.8933
SP Group	1	7.47843	17.87592	0.42	0.6761	22.07070	0.34	0.7350
Svendborg Sparkasse	1	1.68301	17.84190	0.09	0.9249	14.38342	0.12	0.9070
Thrane & Thrane	1	-19.89774	19.74042	-1.01	0.3145	22.16546	-0.90	0.3703
Tivoli	1	-0.24649	17.85194	-0.01	0.9890	15.30763	-0.02	0.9872
TK Development	1	-15.32637	17.93255	-0.85	0.3936	16.81146	-0.91	0.3629
Topsil	1	-9.11550	19.39968	-0.47	0.6389	20.01546	-0.46	0.6492
Vestas	1	-23.17962	18.75191	-1.24	0.2177	26.84205	-0.86	0.3887
Vestfyns Bank	1	1.14184	17.83465	0.06	0.9490	13.96432	0.08	0.9349
Vestjydsk Bank	1	13.49100	18.62678	0.72	0.4696	19.01709	0.71	0.4788
Vordingborg Bank	1	4.19249	17.82216	0.24	0.8142	14.85873	0.28	0.7781

10.9.6. Factors affecting pay-performance

10.9.6.1. Size and industry – Equity at stake[44]



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: TPCW

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	67	16580	247.46408	8.81	<.0001
Error	221	6204.90180	28.07648		
Corrected Total	288	22785			

Root MSE	5.29872	R-Square	0.7277
Dependent Mean	6.35086	Adj R-Sq	0.6451
Coeff Var	83.43322		

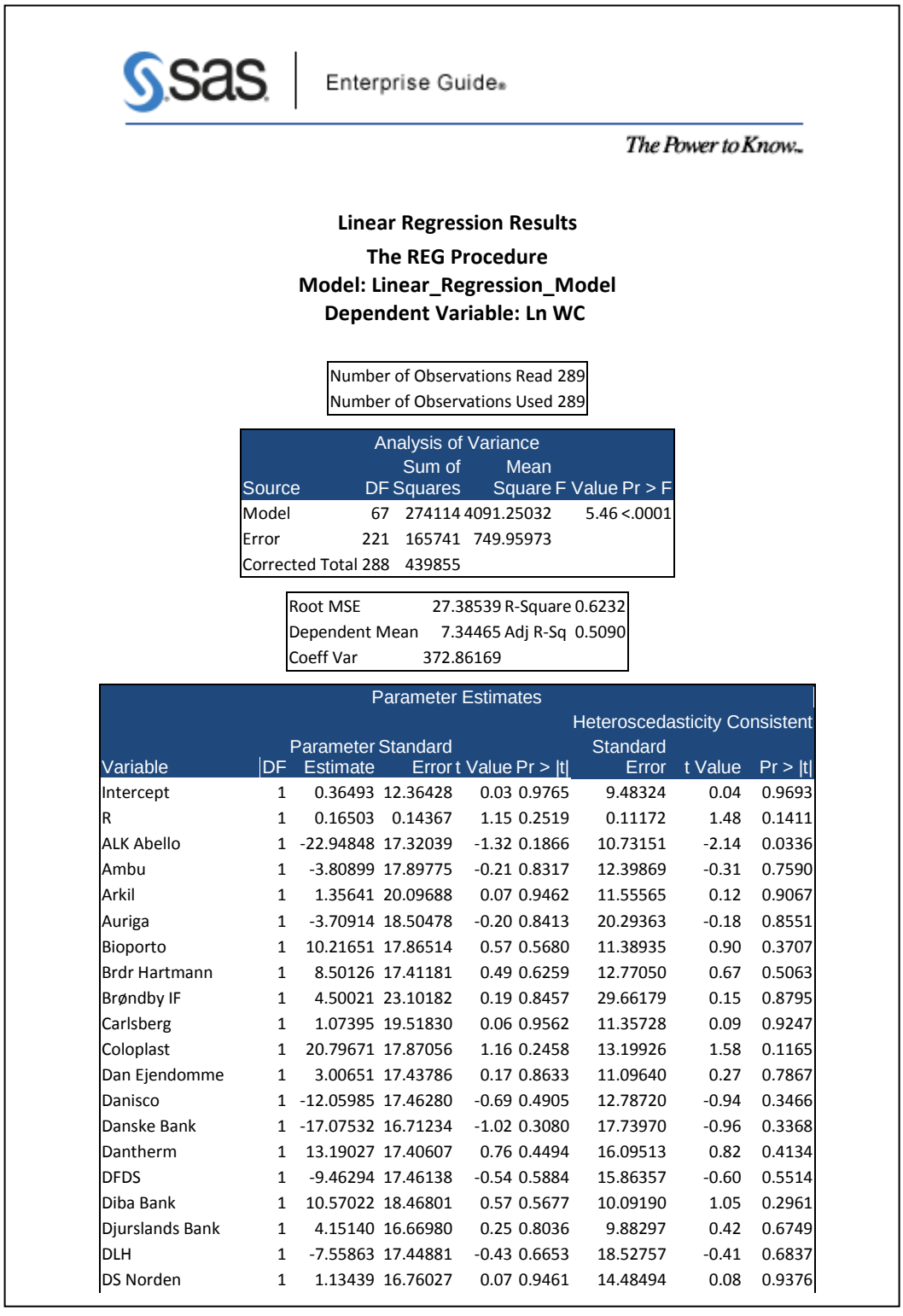
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	1.71552	2.39233	0.72	0.4741	0.40890	4.20	<.0001
R	1	0.01369	0.02780	0.49	0.6229	0.00963	1.42	0.1565
ALK Abello	1	2.58803	3.35127	0.77	0.4408	0.61572	4.20	<.0001
Ambu	1	0.92397	3.46299	0.27	0.7899	1.31085	0.70	0.4816
Arkil	1	2.05242	3.88849	0.53	0.5982	0.78543	2.61	0.0096
Auriga	1	1.45432	3.58044	0.41	0.6850	1.84574	0.79	0.4316
Bioporto	1	-0.05547	3.45668	-0.02	0.9872	0.79818	-0.07	0.9447
Brdr Hartmann	1	2.10998	3.36896	0.63	0.5318	0.46520	4.54	<.0001
Brøndby IF	1	0.10530	4.46991	0.02	0.9812	0.56785	0.19	0.8530
Carlsberg	1	9.96523	3.77654	2.64	0.0089	2.43779	4.09	<.0001
Coloplast	1	9.32715	3.45772	2.70	0.0075	3.18430	2.93	0.0038
Dan Ejendomme	1	-0.12891	3.37400	-0.04	0.9696	0.55199	-0.23	0.8156
Danisco	1	7.42392	3.37883	2.20	0.0290	1.78001	4.17	<.0001
Danske Bank	1	6.05960	3.23362	1.87	0.0623	4.17426	1.45	0.1480
Dantherm	1	1.56272	3.36785	0.46	0.6431	0.88262	1.77	0.0780
DFDS	1	4.93053	3.37855	1.46	0.1459	1.16356	4.24	<.0001
Diba Bank	1	0.82595	3.57332	0.23	0.8174	0.43783	1.89	0.0605
Djurslands Bank	1	0.10253	3.22539	0.03	0.9747	0.48599	0.21	0.8331

[44] As stated in the paper we have performed individual regressions where each category is set as the benchmark. The above is one example where Consumer Discretionary and Small Cap are the benchmarks.

Parameter Estimates								
						Heteroscedasticity Consistent		
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Standard Error	t Value	Pr > |t|
DLH	1	2.31998	3.37612	0.69	0.4927	1.86698	1.24	0.2153
DS Norden	1	15.82996	3.24290	4.88	<.0001	4.40021	3.60	0.0004
DSV	1	11.65881	3.44537	3.38	0.0008	4.47408	2.61	0.0098
FLSmidth	1	-1.51714	3.29422	-0.46	0.6456	2.91556	-0.52	0.6033
Flügger	1	1.15567	3.88352	0.30	0.7663	3.17605	0.36	0.7163
Glunz & Jensen	1	0.61885	3.36773	0.18	0.8544	0.91007	0.68	0.4972
GN store Nord	1	10.16437	3.59613	2.83	0.0051	0.92221	11.02	<.0001
Greentech	1	-1.09731	3.46824	-0.32	0.7520	0.71434	-1.54	0.1259
Gyldendal	1	1.54592	3.49367	0.44	0.6586	0.67512	2.29	0.0230
H+H	1	1.57743	3.24977	0.49	0.6279	0.70178	2.25	0.0256
IC Company	1	1.21648	3.73427	0.33	0.7449	1.40568	0.87	0.3878
Jeudan	1	1.78893	3.22764	0.55	0.5800	1.08992	1.64	0.1021
Kbh Lufthavne	1	4.51703	3.57075	1.27	0.2072	4.73597	0.95	0.3412
Lån og Spar Bank	1	1.02404	3.36740	0.30	0.7613	0.43108	2.38	0.0184
Lundbeck	1	5.80999	3.37272	1.72	0.0864	1.25376	4.63	<.0001
Mols Linien	1	1.49708	3.22601	0.46	0.6431	1.26898	1.18	0.2394
Netop Solutions	1	2.48278	4.45814	0.56	0.5782	0.89127	2.79	0.0058
NKT Holding	1	5.11349	3.38653	1.51	0.1325	2.39478	2.14	0.0338
Nordjyske Bank	1	2.21764	3.22634	0.69	0.4926	0.61800	3.59	0.0004
Novo Nordisk	1	13.40471	3.34535	4.01	<.0001	2.00872	6.67	<.0001
Novozymes	1	16.11319	3.27021	4.93	<.0001	5.48155	2.94	0.0036
NTR Holding	1	-1.19833	3.37409	-0.36	0.7228	0.76310	-1.57	0.1178
Royal Unibrew	1	3.70371	3.82866	0.97	0.3344	2.46780	1.50	0.1348
RTX	1	-0.05562	3.88768	-0.01	0.9886	1.05553	-0.05	0.9580
Salling Bank	1	0.22890	3.22542	0.07	0.9435	0.47834	0.48	0.6327
Sanistål	1	2.77618	3.23437	0.86	0.3916	0.59311	4.68	<.0001
Satair	1	1.51584	3.24688	0.47	0.6411	1.71352	0.88	0.3773
Simcorp	1	4.27724	3.25161	1.32	0.1897	3.10718	1.38	0.1700
Sjælsø	1	3.12411	3.90950	0.80	0.4251	0.52608	5.94	<.0001
Skako	1	1.85039	4.52290	0.41	0.6829	1.06253	1.74	0.0830
Skjern Bank	1	0.64568	3.22727	0.20	0.8416	0.46899	1.38	0.1700
SP Group	1	1.09886	3.23729	0.34	0.7346	2.49424	0.44	0.6600
Svendborg Sparkasse	1	0.57141	3.22560	0.18	0.8596	0.44978	1.27	0.2053
Thrane & Thrane	1	2.12116	3.56957	0.59	0.5530	1.18372	1.79	0.0745
Tivoli	1	1.15494	3.24525	0.36	0.7223	0.82462	1.40	0.1627
TK Development	1	2.39234	3.24813	0.74	0.4622	1.20223	1.99	0.0478
Topsil	1	1.49956	3.55857	0.42	0.6739	1.29934	1.15	0.2497
Vestas	1	2.28766	3.38609	0.68	0.5000	4.05889	0.56	0.5736
Vestfyns Bank	1	-0.04312	3.22532	-0.01	0.9893	0.46069	-0.09	0.9255
Vestjydsk Bank	1	2.34629	3.36913	0.70	0.4869	0.73270	3.20	0.0016
Vordingborg Bank	1	-0.19070	3.22575	-0.06	0.9529	0.51673	-0.37	0.7124
Mid CapxR	1	0.08646	0.01801	4.80	<.0001	0.01975	4.38	<.0001
Large CapxR	1	0.17691	0.01842	9.60	<.0001	0.02745	6.44	<.0001
Helath carexR	1	-0.02383	0.04007	-0.59	0.5527	0.02405	-0.99	0.3228
IndustrialsxR	1	0.01899	0.02990	0.64	0.5260	0.01528	1.24	0.2153
FinancialxR	1	0.00584	0.03046	0.19	0.8480	0.01128	0.52	0.6050
MaterialsxR	1	-0.00074997	0.03460	-0.02	0.9827	0.02870	-0.03	0.9792
Consumer staplesxR	1	-0.02139	0.03953	-0.54	0.5890	0.02724	-0.79	0.4331
ITxR	1	0.00673	0.03003	0.22	0.8228	0.01276	0.53	0.5983
UtilitiesxR	1	0.03643	0.04077	0.89	0.3724	0.01201	3.03	0.0027

10.9.6.2. Size and industry – Elasticity[45]



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	289
Number of Observations Used	289

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	67	274114	4091.25032	5.46	<.0001
Error	221	165741	749.95973		
Corrected Total	288	439855			

Root MSE	27.38539	R-Square	0.6232
Dependent Mean	7.34465	Adj R-Sq	0.5090
Coeff Var	372.86169		

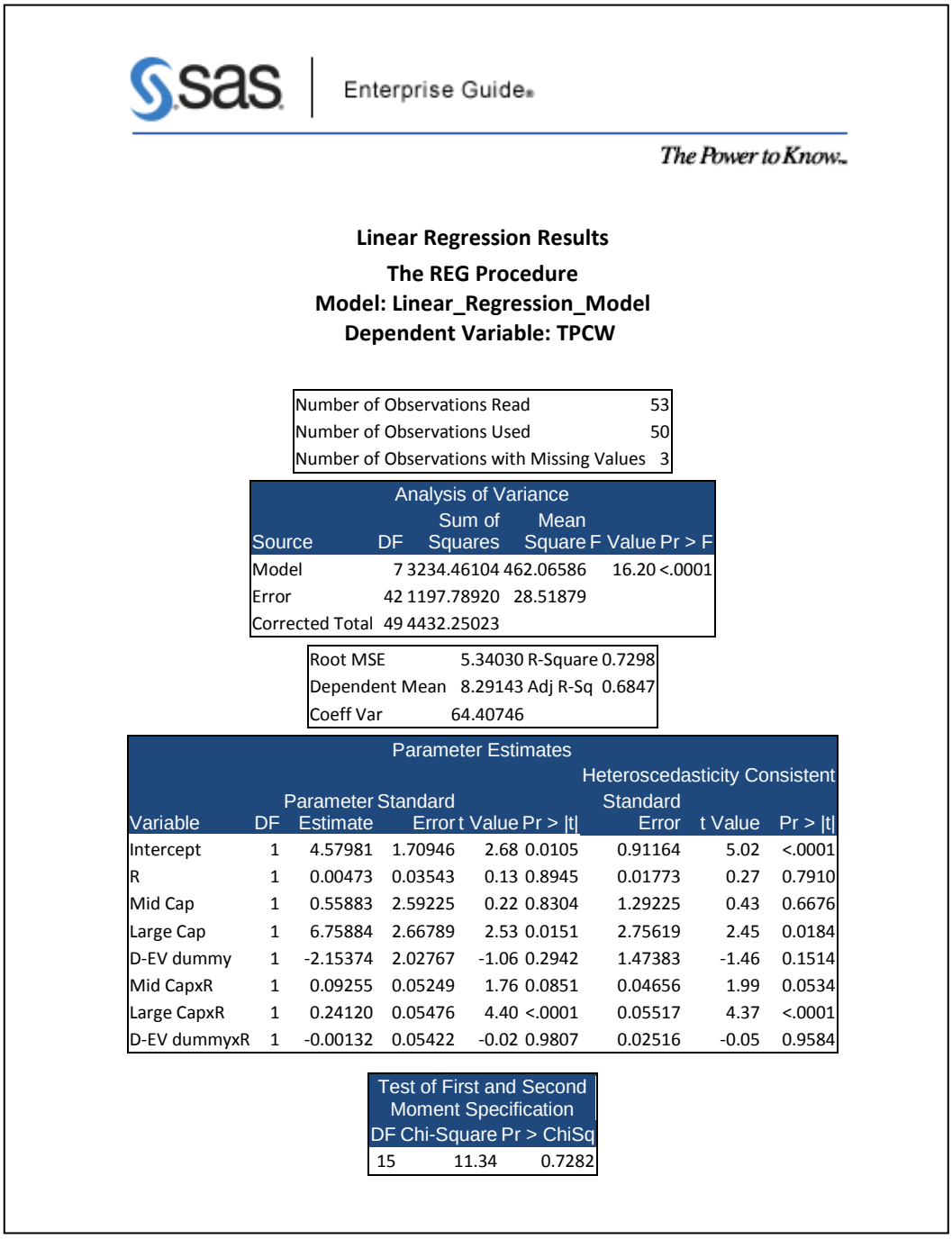
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	0.36493	12.36428	0.03	0.9765	9.48324	0.04	0.9693
R	1	0.16503	0.14367	1.15	0.2519	0.11172	1.48	0.1411
ALK Abello	1	-22.94848	17.32039	-1.32	0.1866	10.73151	-2.14	0.0336
Ambu	1	-3.80899	17.89775	-0.21	0.8317	12.39869	-0.31	0.7590
Arkil	1	1.35641	20.09688	0.07	0.9462	11.55565	0.12	0.9067
Auriga	1	-3.70914	18.50478	-0.20	0.8413	20.29363	-0.18	0.8551
Bioporto	1	10.21651	17.86514	0.57	0.5680	11.38935	0.90	0.3707
Brdr Hartmann	1	8.50126	17.41181	0.49	0.6259	12.77050	0.67	0.5063
Brøndby IF	1	4.50021	23.10182	0.19	0.8457	29.66179	0.15	0.8795
Carlsberg	1	1.07395	19.51830	0.06	0.9562	11.35728	0.09	0.9247
Coloplast	1	20.79671	17.87056	1.16	0.2458	13.19926	1.58	0.1165
Dan Ejendomme	1	3.00651	17.43786	0.17	0.8633	11.09640	0.27	0.7867
Danisco	1	-12.05985	17.46280	-0.69	0.4905	12.78720	-0.94	0.3466
Danske Bank	1	-17.07532	16.71234	-1.02	0.3080	17.73970	-0.96	0.3368
Dantherm	1	13.19027	17.40607	0.76	0.4494	16.09513	0.82	0.4134
DFDS	1	-9.46294	17.46138	-0.54	0.5884	15.86357	-0.60	0.5514
Diba Bank	1	10.57022	18.46801	0.57	0.5677	10.09190	1.05	0.2961
Djurslands Bank	1	4.15140	16.66980	0.25	0.8036	9.88297	0.42	0.6749
DLH	1	-7.55863	17.44881	-0.43	0.6653	18.52757	-0.41	0.6837
DS Norden	1	1.13439	16.76027	0.07	0.9461	14.48494	0.08	0.9376

[45] As stated in the paper we have performed individual regressions where each category is set as the benchmark. The above is one example where Consumer Discretionary and Small Cap are the benchmarks.

Parameter Estimates								
						Heteroscedasticity Consistent		
		Parameter	Standard			Standard		
Variable	DF	Estimate	Error	t Value	Pr > |t|	Error	t Value	Pr > |t|
DSV	1	-3.59823	17.80670	-0.20	0.8400	13.33816	-0.27	0.7876
FLSmidth	1	-10.97640	17.02551	-0.64	0.5198	11.30015	-0.97	0.3324
Flügger	1	-5.85461	20.07121	-0.29	0.7708	18.83792	-0.31	0.7563
Glunz & Jensen	1	-0.04905	17.40542	-0.00	0.9978	12.49274	-0.00	0.9969
GN store Nord	1	26.39171	18.58589	1.42	0.1570	14.43648	1.83	0.0689
Greentech	1	-14.99712	17.92491	-0.84	0.4037	11.26317	-1.33	0.1844
Gyldendal	1	-7.76220	18.05633	-0.43	0.6677	10.82858	-0.72	0.4742
H+H	1	-6.52274	16.79577	-0.39	0.6981	14.08449	-0.46	0.6437
IC Company	1	-12.78779	19.29982	-0.66	0.5083	25.01373	-0.51	0.6097
Jeudan	1	-1.41618	16.68140	-0.08	0.9324	11.25729	-0.13	0.9000
Kbh Lufthavne	1	11.44455	18.45470	0.62	0.5358	28.58466	0.40	0.6893
Lån og Spar Bank	1	4.80081	17.40373	0.28	0.7829	10.34727	0.46	0.6431
Lundbeck	1	-0.68969	17.43124	-0.04	0.9685	9.87227	-0.07	0.9444
Mols Linien	1	-2.19732	16.67299	-0.13	0.8953	16.15716	-0.14	0.8919
Netop Solutions	1	32.36020	23.04101	1.40	0.1616	17.20636	1.88	0.0613
NKT Holding	1	-12.77425	17.50263	-0.73	0.4663	13.69091	-0.93	0.3518
Nordjyske Bank	1	0.77473	16.67471	0.05	0.9630	10.23668	0.08	0.9397
Novo Nordisk	1	3.23037	17.28978	0.19	0.8520	11.35429	0.28	0.7763
Novozymes	1	12.02418	16.90142	0.71	0.4776	20.67934	0.58	0.5615
NTR Holding	1	28.18684	17.43833	1.62	0.1074	21.78344	1.29	0.1970
Royal Unibrew	1	-5.58197	19.78765	-0.28	0.7781	13.82711	-0.40	0.6868
RTX	1	-32.91260	20.09272	-1.64	0.1028	19.52882	-1.69	0.0933
Salling Bank	1	5.08056	16.66993	0.30	0.7608	9.79638	0.52	0.6045
Sanistål	1	7.50105	16.71621	0.45	0.6541	11.78471	0.64	0.5251
Satair	1	-1.79709	16.78086	-0.11	0.9148	11.46395	-0.16	0.8756
Simcorp	1	-2.14996	16.80531	-0.13	0.8983	11.98437	-0.18	0.8578
Sjælsø	1	-9.95467	20.20545	-0.49	0.6227	10.75956	-0.93	0.3559
Skako	1	30.14284	23.37569	1.29	0.1986	11.04578	2.73	0.0069
Skjern Bank	1	3.00042	16.67948	0.18	0.8574	9.61241	0.31	0.7552
SP Group	1	9.68628	16.73127	0.58	0.5632	22.39633	0.43	0.6658
Svendborg Sparkasse	1	3.72645	16.67084	0.22	0.8233	10.25918	0.36	0.7168
Thrane & Thrane	1	-18.26783	18.44859	-0.99	0.3232	19.62783	-0.93	0.3530
Tivoli	1	1.28229	16.77241	0.08	0.9391	11.63649	0.11	0.9124
TK Development	1	-10.97341	16.78730	-0.65	0.5140	13.61542	-0.81	0.4211
Topsil	1	7.44591	18.39177	0.40	0.6860	16.52572	0.45	0.6527
Vestas	1	-29.29494	17.50031	-1.67	0.0956	22.31864	-1.31	0.1907
Vestfyns Bank	1	2.99014	16.66943	0.18	0.8578	9.57466	0.31	0.7551
Vestjydsk Bank	1	14.10936	17.41269	0.81	0.4186	13.89832	1.02	0.3111
Vordingborg Bank	1	5.65490	16.67164	0.34	0.7348	10.24594	0.55	0.5816
Mid CapxR	1	0.32547	0.09307	3.50	0.0006	0.09951	3.27	0.0012
Large CapxR	1	0.34165	0.09520	3.59	0.0004	0.12252	2.79	0.0058
Helath carexR	1	-0.04852	0.20708	-0.23	0.8150	0.16940	-0.29	0.7748
IndustrialsxR	1	0.25385	0.15452	1.64	0.1018	0.13363	1.90	0.0588
FinancialxR	1	0.19317	0.15743	1.23	0.2211	0.12272	1.57	0.1169
MaterialsxR	1	0.24175	0.17882	1.35	0.1778	0.22294	1.08	0.2794
Consumer staplesxR	1	0.32531	0.20429	1.59	0.1127	0.15556	2.09	0.0376
ITxR	1	0.11412	0.15521	0.74	0.4630	0.11926	0.96	0.3396
UtilitiesxR	1	0.60476	0.21069	2.87	0.0045	0.12629	4.79	<.0001

10.9.6.3. Size and other factors – Equity at stake



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: TPCW

Number of Observations Read	53
Number of Observations Used	50
Number of Observations with Missing Values	3

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	3234.46104	462.06586	16.20	<.0001
Error	42	1197.78920	28.51879		
Corrected Total	49	4432.25023			

Root MSE	5.34030	R-Square	0.7298
Dependent Mean	8.29143	Adj R-Sq	0.6847
Coeff Var	64.40746		

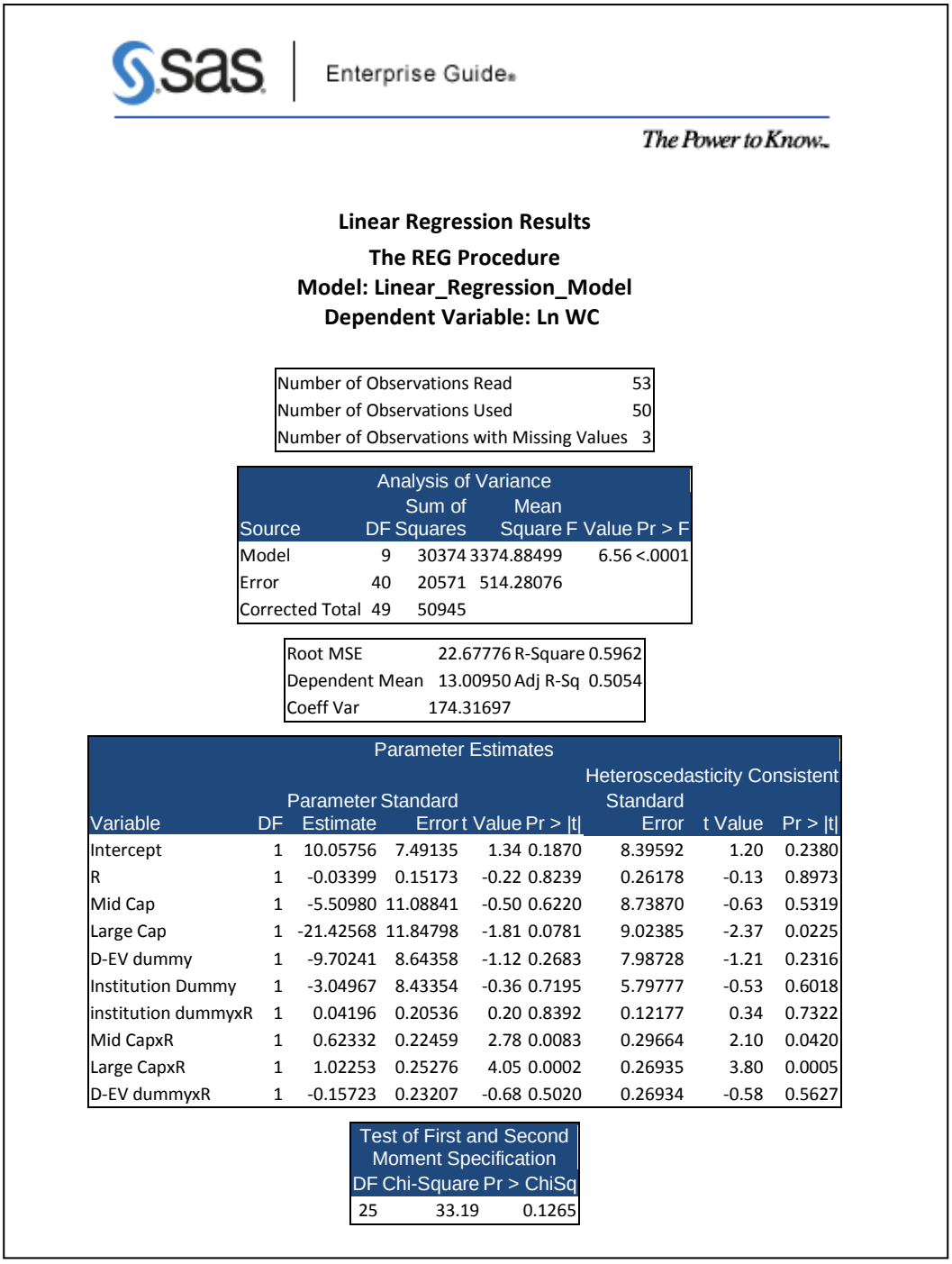
Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	4.57981	1.70946	2.68	0.0105	0.91164	5.02	<.0001
R	1	0.00473	0.03543	0.13	0.8945	0.01773	0.27	0.7910
Mid Cap	1	0.55883	2.59225	0.22	0.8304	1.29225	0.43	0.6676
Large Cap	1	6.75884	2.66789	2.53	0.0151	2.75619	2.45	0.0184
D-EV dummy	1	-2.15374	2.02767	-1.06	0.2942	1.47383	-1.46	0.1514
Mid CapxR	1	0.09255	0.05249	1.76	0.0851	0.04656	1.99	0.0534
Large CapxR	1	0.24120	0.05476	4.40	<.0001	0.05517	4.37	<.0001
D-EV dummyxR	1	-0.00132	0.05422	-0.02	0.9807	0.02516	-0.05	0.9584

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
15	11.34	0.7282

10.9.6.4. Size and other factors – Elasticity



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Linear Regression Results

The REG Procedure
Model: Linear_Regression_Model
Dependent Variable: Ln WC

Number of Observations Read	53
Number of Observations Used	50
Number of Observations with Missing Values	3

Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	9	30374	3374.88499	6.56	<.0001
Error	40	20571	514.28076		
Corrected Total	49	50945			

Root MSE	22.67776	R-Square	0.5962
Dependent Mean	13.00950	Adj R-Sq	0.5054
Coeff Var	174.31697		

Parameter Estimates

Variable	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Heteroscedasticity Consistent Standard Error	t Value	Pr > |t|
Intercept	1	10.05756	7.49135	1.34	0.1870	8.39592	1.20	0.2380
R	1	-0.03399	0.15173	-0.22	0.8239	0.26178	-0.13	0.8973
Mid Cap	1	-5.50980	11.08841	-0.50	0.6220	8.73870	-0.63	0.5319
Large Cap	1	-21.42568	11.84798	-1.81	0.0781	9.02385	-2.37	0.0225
D-EV dummy	1	-9.70241	8.64358	-1.12	0.2683	7.98728	-1.21	0.2316
Institution Dummy	1	-3.04967	8.43354	-0.36	0.7195	5.79777	-0.53	0.6018
institution dummyxR	1	0.04196	0.20536	0.20	0.8392	0.12177	0.34	0.7322
Mid CapxR	1	0.62332	0.22459	2.78	0.0083	0.29664	2.10	0.0420
Large CapxR	1	1.02253	0.25276	4.05	0.0002	0.26935	3.80	0.0005
D-EV dummyxR	1	-0.15723	0.23207	-0.68	0.5020	0.26934	-0.58	0.5627

Test of First and Second Moment Specification

DF	Chi-Square	Pr > ChiSq
25	33.19	0.1265