



LUND UNIVERSITY

School of Economics and Management  
Department of Business Administration  
Master Thesis, Spring 2012

## **M&A Behaviour and CEO Compensation**

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A Swedish study with governance implications

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## **Abstract**

Title	M&A Behaviour and CEO Compensation – A Swedish study with governance implications
Seminar date	June 1, 2012
Subject	BUSN89 Master Thesis Corporate and Financial Management
Authors	Gustaf Larsson Ernefelt & Anders Walle
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Key Words	CEO-compensation, M&A Behaviour, Firm size effect, Flawed incentive systems, Corporate governance
Purpose	The authors are intending to investigate if theoretical arguments for misalignments from compensation structures go for Swedish firms. Attempting to bring research forward, the frameworks on M&A and compensation literature will be combined to investigate the interdependence between CEO compensation and M&A behaviour
Methodology	An empirical research is made utilizing a multiple panel regression study, adjusted for firm size effects. Clustered observations in the sample with the highest and lowest compensations provide a complementing explanation
Theoretical framework	The theory includes previous empirical studies of M&A performance and drivers of both M&As and CEO compensation, with its implication of the M&A behaviour
Empirical foundation	The empirical research consists of compensation and merger statistics of OMXS30 between 2000-2011
Conclusions	The authors find, with a strong significance, that CEOs with higher fixed compensation tend to make more and larger acquisitions than those with lower. The conclusions provide a further explanation of the rationale behind mergers in Swedish firms as impacted by something else than value creating. Although flawed compensation structures do not account for the whole explanation, the authors do argue for the findings proving the mere existence of inappropriate incentive systems and the lack of a governing effect in Swedish companies

## Table of Contents

1 Introduction.....	5
1.1 Background.....	5
1.2 Problem discussion .....	6
1.3 Question at issue .....	7
1.4 Purpose.....	8
1.5 Demarcation.....	8
1.5 Thesis outline.....	9
2 Theoretical framework.....	11
2.1 M&A Drivers.....	11
2.2 M&A Performance.....	13
2.2.1 Theoretical implication of M&A performance .....	13
2.2.2 Empirical evidence of M&A performance.....	13
2.3 Organizational theories and compensation drivers .....	16
2.3.1 Principal agent theory and compensation impact .....	16
2.3.2 Managerial power hypothesis .....	17
2.4 Internalization and country origin.....	19
2.4.1 Country origin.....	20
2.5 Firm characteristics and the impact of executive compensation .....	21
2.5.1 Size of the firm.....	22
2.5.2 Takeover threat and firm specific risk .....	22
2.5.3 Performance and profitability .....	23
2.5.4 Acquisition behaviour .....	23
3 Methodology.....	25
3.1 Collection of data.....	25
3.2 Methodological demarcations.....	26
3.3 Selection of measurements .....	28
3.3.1 Regression methodology.....	29
3.3.2 Clustered observations in the sample.....	30
3.4 Source discussion.....	30
3.4.1 Validity .....	30
3.4.2 Reliability.....	31

4. Empirical results .....	33
4.1 Multiple regressions.....	33
4.1.1 Fixed compensation .....	33
4.1.2 Variable compensation.....	34
4.1.3 Total compensation .....	35
4.2 Clustered observations in the sample.....	36
4.2.1 Fixed compensation .....	36
4.2.2 Variable compensation.....	37
4.2.3 Total compensation .....	37
5 Analysis.....	38
5.1 Regression analysis.....	38
5.1.1 Fixed compensation .....	38
5.1.2 Variable compensation.....	39
5.1.3 Total compensation .....	40
5.2 Further implications .....	41
6. Conclusion .....	43
6.1 Limitations and future research .....	44
7. References.....	46
7.1 Annual reports.....	52
Appendix 1 .....	
Appendix 2.....	

# 1 Introduction

## 1.1 Background

*“So many mergers fail to deliver what they promise that there should be a presumption of failure. The burden of proof should be on showing that anything really good is likely to come out of one”*

Warren Hellman, former CEO Lehman Brothers  
(Chandra, 2008: 894)

Mergers and acquisitions (M&As) provide companies with opportunities of growth at a much faster pace than internal organic growth would allow. The intensity of M&As has throughout the history varied and been heavily influenced by merger waves and industry consolidation, due to the need of a rapid industry change (Gaughan, 2011; 29-30). The most general explanations behind M&As are related to accelerated and higher growth than organic, but also pure economical reasons. Researchers, among them Larsson & Finkelstein (1999), present evidence of the impact from many variables, among them the behaviour and incentives of the executives.

A common base in the area of research concludes that target company shareholders receive an excess return consisting of a premium bid on the stock (Dodd, 1980). On the contrary, researchers such as Agrawal & Walking (1994) and Andrade, Mitchell & Stafford (2001) conclude that the acquiring company shareholders do not receive any excess returns from mergers. Andrade et al (2001) claim an overall value creation from M&As, while others, such as Ravenscraft & Scherer (1989), do not find evidence for value creation. The lack of clear benefits for the acquiring firms puts an emphasis on the statement of Warren Hellman and raises the question; why do firms keep on acquiring?

*“... it is important to keep in mind that individuals respond to incentives – and that when incentives are structured inappropriately, employees can act in ways that destroy value.”*

Brickley (2003: 8)

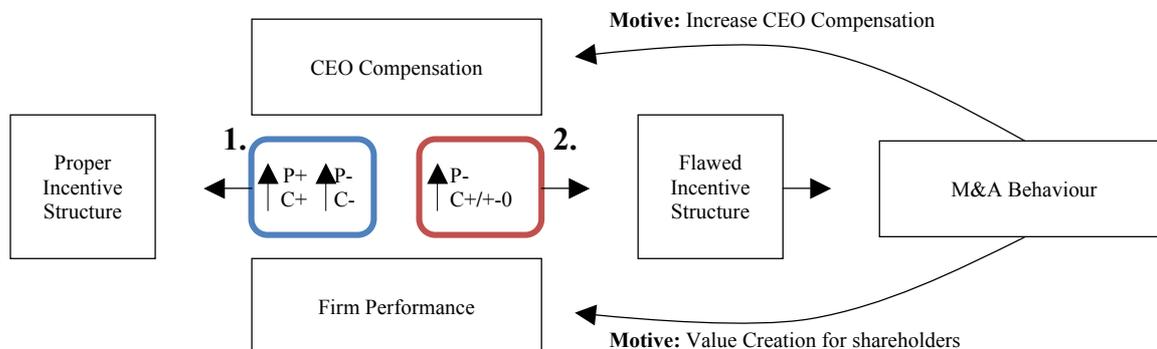
Bliss & Rosen (2001) and Khorana & Zenner (1998) have concluded a positive relationship between executive compensation and positive post-merger performance.

However, when post-merger performance has been negative, the outcome of compensation has been unaffected, implying a lack of governing compensation system. In the light of compensation researchers, such as Ang et al (2009) and Eichholtz, Kok & Otten (2008), who conclude higher market capitalization as the main determinant of compensation, these findings indicate that M&As that increase firm size, increase the CEO compensation regardless of value creation. The quote of Brickley (2003) implies the answer of the rationale behind M&As with no clear benefit for the stockholders; an inappropriate incentive system.

## **1.2 Problem discussion**

Hartford & Li (2007) and Khorana & Zenner (1998) present evidence showing that compensation becomes less sensitive for post-merger performance, with none or little impact if the M&A performance is negative. If executives initiate M&As more frequently with lower profitability as a result, could an increase in compensation explain the phenomenon and the high amount of unprofitable M&As? Instead of slower organic growth, M&As tend to be a faster and risk free bet for CEOs to increase the size and risk exposure of the company, in an attempt to increase the total compensation. We identify a flawed link and find the need for an investigation regarding the rationality behind mergers and a possible agency issue.

In Larsson & Walle (2011), we suggest that the same incentive issues as measured in US, Europe and Asia, affect Swedish firms. Although compensation is found to have correlation to performance by several researchers, the strongest impacting variable is the firm size. Research indicates that CEOs are not always penalized for bad firm performance, which raises the question of flawed incentive systems.



1. **Proper Incentive Structure:** Positive (M&A) Performance (P+) leads to a positive impact on CEO Compensation (C+). Opposite, negative performance (P-) leads to penalized compensation (C-). This is a proper incentive structure, which incentivize the CEO to perform value creating mergers

2. **Flawed Incentive Structure:** Negative (M&A) Performance does not penalize the CEO Compensation, which still is positive or unaffected (C+/-0). This is a flawed incentive system, which incentivize the CEO to perform mergers with increased CEO Compensation as motive, and a M&A Behaviour unaligned with the shareholders

Figure 1. This figure explains the impact of CEO Compensation and flawed incentives on the M&A Behaviour

To explain our emphasis on the agency issue at present, we present three important variables; CEO compensation, M&A behaviour and M&A performance. The missing link we present is when CEOs are rewarded despite negative M&A performance. If the compensation is driven by something else, which we previously defined as firm size, this creates a flawed incentive. This flawed incentive would induce the CEOs to change the M&A behaviour in order to increase their own remuneration. This possible misalignment between shareholders and agents could explain why CEOs initiate M&As with negative value creation.

### 1.3 Question at issue

- Do compensation and flawed incentive systems explain M&A behaviour in Swedish firms?

## **1.4 Purpose**

Descriptive research of Swedish M&As remain absent in common research, both in regards of post-acquisition performance and the interdependent relationship between incentive issues and M&A behaviour. The different compensation structure in Swedish firms, with lesser equity based pay, hence lower governing factor for the firm size effect, provides an interesting field of research.

Our purpose is to investigate if the same theoretical arguments for misalignments from compensation structures go for Swedish firms. We will attempt to bring forward research, combining the frameworks of M&A literature and compensation literature to investigate the interdependence between compensation and M&A behaviour.

## **1.5 Demarcation**

Instead of trying to explain the whole mechanism of behaviour affected by intrinsic and extrinsic rewards, our report will only focus on one of the three main extrinsic rewards; remuneration. We intend to explain remuneration as an important impacting driver for M&A and indirectly, an important variable for future research to take into account when investigating merger performance. Although including the whole personal rationality in our framework would have had a higher explanatory factor, we find remuneration to be the variable of greatest impact and the highest possibility to quantify in a regression study. Hence, we choose to explain this variable instead of including the whole framework in regards of the limited time for this research.

In an attempt to narrow down the compensation literature and adapt it to the variables that are the closest related to M&A behaviour, we have excluded behavioural compensation literature such as the tournament theory and the Lake Wobegon effect.

Governance factors, such as ownership structure, executive personal wealth and board settings have an explanatory power in the sense as a governing factor of adverse selection and decisions. Although Bliss and Rosen (2001) confirm strong governance as a factor for decreasing merger activity, Kaplan (2008) among others, argues that

the increase in executive compensation cannot be explained by the level of power by managers. Psychosocial theories, such as risk aversion as well as firm specific risk, difference in risk compensation and industry compensation are excluded to put an emphasize on remuneration as the main impacting variable.

In our study of the Swedish market and acquisition behaviour, we will not process or analyze individual M&A performance but annual M&A activity and firm performance. Hence, our measured implication of merger activity on executive compensation will not take short-term value creation or -destruction into account like individual case studies would, but rather measure the long-term implications on the firm's profitability. The M&A literature is narrowed down the main drivers behind M&A decisions and to show if M&As on average are value creating. We exclude underlying reasons why they are unprofitable, such as failing synergies or cultural clashes.

For further methodological demarcations, the reader is referred to Chapter 3.2.

## **1.5 Thesis outline**

*Theoretical framework* – this chapter explains earlier researches and surveys in the area and will provide framework such as implication of M&A performance, M&A Behaviour and compensation drivers.

*Methodology* – the chapter describes the method and procedure we worked from, particularly our arrangement of data selection and critical study of both theoretical and empirical background. A further chapter of our methodological demarcations is presented, explaining the variables we have excluded from the empirical research.

*Empirical results* – the empirical results in the form of our 30 Swedish companies, OMX30<sup>1</sup>, are presented in two sub-chapters; the regression study with selected parameters and clustered observations in the sample of the five highest and lowest

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<sup>1</sup> Stockholm OMX30 also called OMXS30

average paying companies.

*Analysis* – in order to connect the theoretical frameworks with the empirical studies we conduct an analysis of the combined findings and the general implications.

*Conclusion* – Finally, our conclusions regarding the theoretical implications and our empirical studies are presented.

## 2 Theoretical framework

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*This chapter will provide the reader with two major frameworks in order to explain the co-dependence between factors within M&A literature and compensation literature. Firstly; several known drivers of M&A activity are presented to highlight the main view of the decisions underlying a merger. Secondly; M&A performance literature is presented to help conclude a consensus among researchers in regards of whether M&As create or destroy value. Thirdly and last; the main findings within compensation theory are presented, with a main focus on the factors impacting firm growth and consequently compensation in relation to acquisitions.*

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### 2.1 M&A Drivers

The motives for M&As are numerous and often co-dependent with the most common motives usually described as increased sales or achieved synergies, very often characterized by decreased costs (Gaughan, 2011). Although focus is usually directed towards the potential economical gains, Larsson (1990) has grouped a generalization of rationales for M&As into three categories; economic-, organizational- and personal- rationality.

*Economic rationality* consists of achieved synergies by increased economical value from economies of scale and scope such as increased profitability, sales, growth, lowered costs or utilizing tax benefits. *Organizational rationality* is driven by increased control and enhanced survival, which does not have to coincide with neither economical nor personal gains, although the control of the company increases. *Personal rationality*, which is the main rationality we will be explaining, consists of decisions increasing executive remuneration or stimulating managerial hubris<sup>2</sup>, such

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<sup>2</sup> Hubris is defined as an “extreme and unreasonable feeling of pride and confidence in yourself” (Cambridge Dictionaries Online, 2012: hubris)

as empire building<sup>3</sup> without rational economical incentives or methods to manipulate performance based compensation that are not in line with shareholders best interest (Larsson, 1990).

The three rationales are not dependent on each other, although they very often coincide. The organizational rationale of avoiding hostile takeovers by increasing company size may very well be economically rational by gaining a more dominant position on the market (Gaughan, 2011), while at the same time increase the executive compensation due to the larger market capitalization (Hartford & Li, 2007; Larsson, 1990).

Khorana & Zenner (1998) are explaining two competing rational arguments for corporate acquisitions. The wealth maximization argument explains the managers as acting in the interest of the shareholders, executing acquisitions to create value for the shareholders. Contradicting the wealth maximization argument, explains managers to act in self-interest and the acquisition behaviour as a result of achieving greater power, increasing the prestige and increasing the compensation associated with larger companies (Khorana & Zenner, 1998).

The implications of incentive systems affecting M&A behaviour are confirmed in several studies. Bliss and Rosen (2001) find that higher levels of stock-based compensation reduce the frequency of acquisitions, consistent with incentive theory and managerial response to the higher sensitivity stock performance to personal wealth. Cai & Vijh (2007) and Datta, Iskandar-Datta & Raman (2001) find an additional correlation to more frequent M&As. This somewhat contradicts Bliss & Rosen (2001), who find equity-based compensation to decreasing the number of M&As. A sizeable number of researchers, among them; Coles, Daniel & Naveen (2006), Lewellen (2006) and Rajgopal & Shevlin (2002) conclude that equity incentives lower the firm's risk taking due to the increased sensitivity of the executive(s), which as a result changes the behaviour towards less risky, and in some instances, less frequent M&As.

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<sup>3</sup> "In the corporate world, this is seen when managers or executives are more concerned with expanding their business units, their staffing levels and the dollar value of assets under their control than they are with developing and implementing ways to benefit shareholders" (Investopedia, 2012: empire building)

## **2.2 M&A Performance**

### **2.2.1 Theoretical implication of M&A performance**

Increasing economical value in a company is likely to increase the survival rate of the company as well as an increased performance based compensation to executives. Many researchers provide reasons for failing performance of the M&As as unrealized economical synergies (Haleblian, Devers, McNamara, Carpenter & Davison, 2009). Larsson (1990) highlights the importance of investigating the human side of M&As as a highly determining factor for success or failure. Employee resistance, cultural clashes, acculturation and career implications are all important aspects in the outcome whether a merger is successful or not. By addressing these issues - pre and post-merger - merged firms will have a higher chance of improved performance than purely economical oriented actions (Larsson, 1990).

Larsson & Finkelstein (1999) are stressing the importance of relative size between acquirer and target. They find patterns linking equal company size to successful M&As, which is explained by managerial attention and effort increasing with larger acquisitions. The combination and synergy potentials tend to increase with the relative deal size, which previous researchers such as Kitching (1967) have confirmed.

Larsson (1990) finds research using none or only one of the rationales behind M&As are winding up with inconsistent findings. He proposes the financial outcome of synergy realization of a merger result of co-integration between the variables economical, organizational and personal rationality.

### **2.2.2 Empirical evidence of M&A performance**

The excess return for target shareholders is a result of the given premiums paid in the acquisitions, confirmed by Asquith & Kim (1982) Datta, Pinches & Narayanan (1992), Ellert (1976), Hansen & Lott (1996) and Malestra (1983). Langtieg (1978) and Mandelker (1974) confirm an abnormal positive return for target shareholders seven months pre-merger. Dodd (1980) provides two possible explanations. Rumours

or pending negotiations could have affected the company valuation or the acquired firms experienced persistent good performance pre-merger.

However, Loughran and Vijh (1997) are throwing some doubt on the general consensus of target shareholders always gaining excess return when combining the pre- and post-acquisition returns. In the case of stock based financing, the target shareholders who do not sell off their new shares immediately find their excess returns diminishing gradually (Loughran and Vijh, 1997). In their findings, they show that the following five-year period post-acquisition in a stock financed deal, the negative excess return was 25.0 percent, while cash financed acquisitions had a positive excess return of 61.7 percent for the acquiring company. In context with economic booms, Gaughan (2011) explains that the type of financing signals whether managers find their own stock to be over valued (resulting in equity based deals) or under valued (resulting in cash based deals). Applying Gaughan's (2011) argument, negative returns post-equity deals would be explained by the acquiring firm being overvalued pre-deal.

Andrade et al (2001), in line with Hartford & Li (2007), Loughran & Vijh (1997) and Mitchell & Stafford (2000) are finding a significant negative correlation between stock financed deals and post-merger performance in the acquiring firm. Cash financed deals are measured as value creating post-merger, and the total value creation for the shareholders of the acquired and acquiring firm together is positive. When looking at only target firm shareholders, the return is 7 percent higher (20 percent total abnormal return) for cash financed deals, clearly indicating underperforming equity deals. Loughran & Vijh (1998) measure similar correlations, stating the financing option to have a large explanatory variable for the merger outcome.

The importance of relative size is emphasized in Kitching (1967). Among 84 percent of the failed acquisitions in the research sample of 69 acquisitions between 1960-1965, the acquiring company has purchased a company with less than 2 percent of its current sales, stating that a smaller relative size tends to have a negative impact on merger performance (Kitching, 1967). The same conclusions are drawn by e.g. Larsson & Finkelstein (1999) and Jarrel & Poulsen (1989).

Ravenscraft & Scherer (1989) are using accounting based measures to evaluate post-merger profitability, and find a weak significant positive effect on value creating in M&As with equal company structure. However, the overall conclusion tends towards a negative correlation between mergers and post-merger profitability and a negative view of mergers as value creating.

Asquith (1983), Langetieg (1978), Magenheim & Mueller (1988) and Loderer & Martin (1992) are concluding a negative long-run performance of acquiring firms over one to three years post acquisition. After adjusting for firm size effects and firm specific risk, Agrawal, Jaffe & Mandelker (1992) show that NYSE acquiring, acquiring NYSE/AMEX targets, tend to underperform by ten percent over five years post merger between 1955 and 1987. Agrawal et al (1992) conclude that the negative post-merger-performance discrepancy seems to go on from the 1950's to the 1980's, except for the 1970's, with no clear explanation what the underperformance is caused by. Later studies by Moeller et al (2004) find substantial negative announcement returns and substantial losses to large acquiring firms, while Kohers & Kohers (2001) find a negative drift in performance several years post-acquisition.

Among the researchers concluding that acquisitions per definition destroy value, we find Chatterjee (1992), D. K. Datta, Pinches & Narayanan (1992), King, Dalton & Covin, (2004), Moeller, Schlingemann & Stulz (2004) and Seth, Song & Pettit (2002).

On the contrary, Malatesta (1983), Mandelker (1974), Bradley and Jarrel (1988) and Franks, Harris and Titman's (1991) do not investigate any significant underperformance within the three years period post acquisition. Agrawal et al (1992) are describing these earlier studies as lacking of adjustment for firm size effect and the causing of the findings. Bradley, Desai & Kim (1988), Houston, James & Ryngaert (2001) and Leeth & Borg, (2000), are stating that acquiring firms on average gain neutral or small negative return, but as value is created for the target firms shareholders, M&As are value creating in total. The same statement is drawn by Andrade et al (2001), Jarrel, Brickley & Netter (1988) and Jensen & Ruback (1983).

## **2.3 Organizational theories and compensation drivers**

### **2.3.1 Principal agent theory and compensation impact**

Back to the separation of corporate ownership and corporate control, Berle & Means (1934) and the theory behind principal-agent have been a key issue in regards of CEO performance and decisions being in line with shareholder interest. According to Jensen & Meckling (1976), CEOs have an economic incentive to put their own self-interest before the interest of the shareholders. This behaviour can result in non-profitable investments, unjustified empire building and nepotism to name a few, which have the same negative attribute for the shareholders while rewarding to the management (Frydman & Jenter, 2010).

To counterbalance this effect, incentive based pay has been implemented and as stated in Chapter 2.3.2.1, performance and stock-based pay are today a majority of the total CEO compensation in both the US and Europe, with exception for the Nordic countries. The side effects described by publications in the field, among them Coles, Daniel and Naveen (2006) and Lewellen (2006), suggest that higher equity-based payments decrease the company's risk taking, due to the increased CEO ownership, hence increased sensitivity to private wealth. On the contrary, option-based compensation increases risk taking due to the structure of options, only giving return if the stock price is above a given level. In an attempt to increase the probability of return from the option holdings, increasing the firm risk through acquisitions can be one way of achieving success, suggesting incentive compensation to be carefully investigated before executed. Moral hazard is at hand when CEOs are able to regulate their own compensation by increasing potential return from their option holdings by increasing the firm specific risk or decrease the risk of their stock holdings by decreasing the firms risk exposure. This is a risk change that could be value destroying for the shareholders.

Empirically, increased ownership and equity-based compensation do however tend to improve the long-term performance for the acquiring firms (Datta et al 2001; Denis, Denis & Sarin, 1997). The level of ownership is discussed by Hubbard and Palia (1995), who claim that managers with moderate levels of ownership are aligning with

shareholder interest, while too low or too high levels of ownership create misalignment with the shareholders. The main side effect measured as a result was overpaying in acquisitions.

Bliss and Rosen (2001) are highlighting the two offsetting variables affecting the CEO compensation in a merger. If the stock performance drops, the performance based pay will decline in value. However, the size effect, described in chapter 2.4.4.1. will offset the negative impact. Although the outcome could be negative for the shareholders, the executive compensation can result in a positive net effect for the CEO. This is empirically confirmed by Grinstein & Hribar (2004), who confirm the existence of an additional bonus post-merger as a direct effect of completing the deal. Sanders (2001) finds CEO stock option holdings to be correlated with higher activity while Deutch, Keil & Laamanen (2007) draw the same conclusion for the board of directors.

Choosing the perfect performance measure is highly debated and separates both the academic world and the corporate side. Accounting based measures, quantifying profitability or sales growth is one way to link executive compensation to performance, measuring the stock price movement is another. However, problematic concerning relative performance is being raised when compensation structures are designed with no possibility of separating the company performance from relative industry performance. Both Diamond & Verrecchia (1982) and Holmström (1982) are discussing the importance of filtering out systematic risk, such as industry distress or general economic downturns and to link the performance of the firm in relation to the industry average.

### **2.3.2 Managerial power hypothesis**

The managerial power hypothesis is explained by Bebchuk & Fried (2004) and Kuhnen & Zwiebel (2009) as a phenomenon of inefficient compensation being sustained in market equilibrium due to more diffuse and harder observable payment forms. The CEO exploits the weaker corporate governance structure in the company in order to influence the compensation structure and to implement less observable

payment forms, such as stock related compensation or pensions, which is negative in regards to shareholder value (Acharya & Volpin, 2010; Dicks, 2012; Frydman & Jenter, 2010: 89). As a result, this leads to a decline in stock returns and a negative behaviour in regards of stockholder value (Brick, Palmon & Wald, 2006).

In government-controlled companies, the governance mechanism is measured to be higher than in private companies, and consequently lower compensation structure for public owned companies compared to private peers (Conyon & He, 2011). In a study presented by Kroll, Wright, Toombs and Leavell (1997), manager-controlled firms had a higher growth in CEO compensation from acquisition activity than the owner-controlled firms, where the compensation was more closely related to shareholder returns. This behaviour explains the senior executives acquiring by self-interest motives rather than in the best interest of the shareholders (Agrawal and Mandelker, 1987; Amihud and Lev, 1981; Marris, 1964; Morck et al 1990).

Shen et al (2010) explain the CEOs compensation as a function of both his or hers competence and power within the company. Hambrick & Finkelstein (1995) explain positive correlation between strong governance, hence strong ownership and controlled boards, and lower executive compensation. Frydman (2010) regards managerial power and competitive market as important determinants of compensation, but not fully consistent with the evidence found.

Grinstein and Hribar (2004) find that managers who are able to influence their board, receive significantly larger bonuses. The more effort by the CEO, e.g. negotiating a deal, the more increases the compensation. The same positive correlation is however insignificant in regards of compensation and deal performance. CEOs with greater power tend to make larger deals, relative to their own size, whereas a market reaction generally is worse than in companies with less powerful CEOs. The evidence is consistent with the argument that managerial power is the primary driver of M&A bonuses.

Critics of the managerial power hypothesis, among them Hermalin (2005), Holmström & Kaplan (2001) and Kaplan (2008), argue that the governance over the past 30 years has increased substantially, not weakened as the theory states. The

increase in executive compensation in relation to the average employee can be explained by other factors than control over the board. Applying Piketty & Saes' (2003) arguments of a changed social norm and acceptance of unequal pay, an acceptance of increased CEO compensation in Sweden is a result of adjustment of underpaid managers during the past three decades rather than unjustified compensation as of today. Brick, Palmon and Wald (2006) discuss the risk of cronyism<sup>4</sup>, which during weak governance induces the executives and the board of directors to align its own incentives before the interest of the shareholders.

## **2.4 Internalization and country origin**

Internalization of firms has influenced executive compensation by normalizing wages to global standards Sanders & Carpenter (1998). Increase of executive compensation in the Swedish market could be partially explained as a product of internalized companies, adapting to international demand of labour and setting compensation at a benchmark in line with international competitors. Sanders & Carpenter (1998) would explain the increase in countries with average lower wages, such as Sweden, as partly the result of international acquisitions. If company A buys company B with origin in the US, the executives in company B will be overpaid in relation to company A. The solution is increasing the wages for executives in company A, adjusting compensation to the higher average.

The increased demand for manager talent and decreased sensitivity of company's resource allocation to executive compensations could be another factor explaining increase in remunerations. As a result of financial strength, large companies are consequently able to award its management with larger compensation packages than smaller firms. This has been confirmed during the past decades through research such as Gabaix & Landier (2008), Himmelberg & Hubbard (2000), Rosen (1981; 1982) and Terviö (2008). A clear example is the merger between Daimler Benz and Chrysler in 1997. Robert Eaton, CEO of US. based Chrysler, had a base salary of \$11.5 million compared to European based Jurgen Schrempp, CEO of Daimler Benz

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<sup>4</sup> cronyism: "when someone important gives jobs to friends rather than to independent people who have the necessary skills and experience" (Cambridge Dictionaries Online, 2012: cronyism)

who had a base salary of merely \$2 million. The salaries were made unofficial post merger, comparing with the new salary of Jurgen Schrempp's in 2004, it had substantially increased to a total compensation of \$12 million (Deutsche Welle, 2004). A recent famous case in Sweden is the board of Electrolux, which during 2008 hired an American CEO and increased the compensation with roughly 30 percent, an increase with SEK 4 million, motivating its actions with similar arguments (Svenska Dagbladet, 2010)

#### **2.4.1 Country origin**

Country specific conditions affect the CEO compensation substantially, both in regards of size and type of payment. About 30 percent of the annual pay for American CEOs consists of fixed salary, compared to 50 percent of European CEOs (Conyon, 2011). The figures for the largest Swedish companies (OMX30) are roughly 65 percent (Halvarsson & Halvarsson, 2010). Long-term incentives are substantially higher in the US; 46 percent of annual pay compared to the European and Swedish average of 19 respective 7 percent.

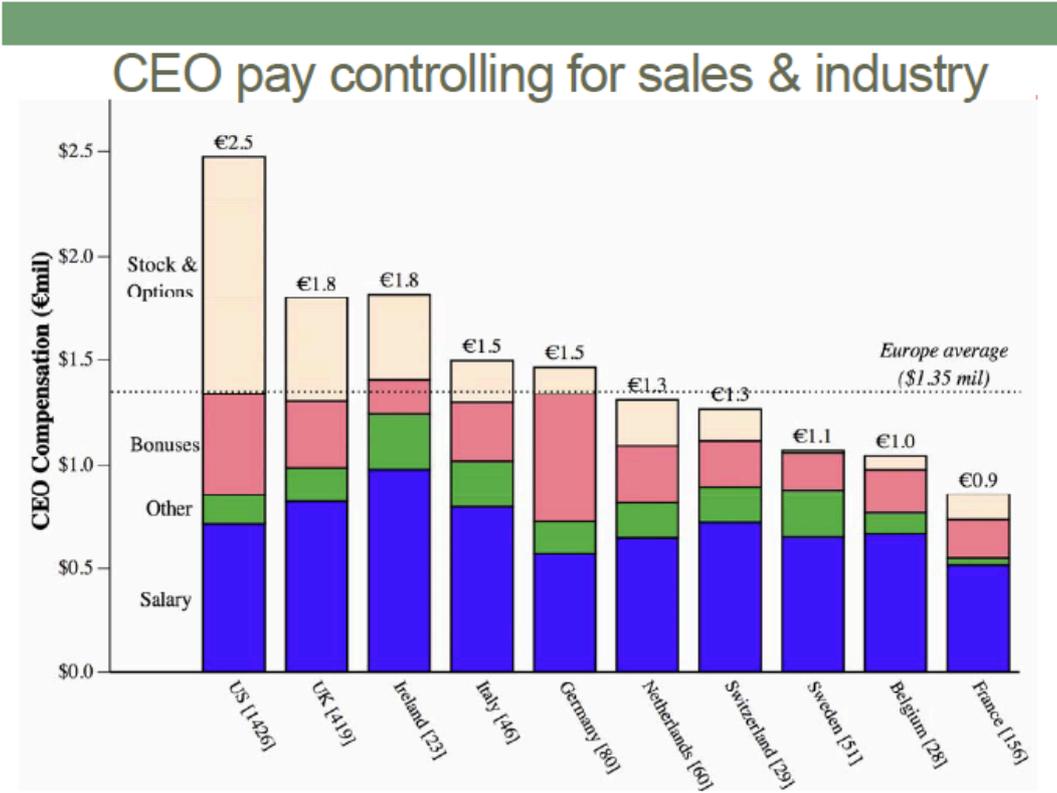


Figure 2. The figure shows the compensation structures and relative compensation size in different payment forms and for various countries. Conyon & He (2011: 53)

In real terms, the US executive compensation is roughly twice the size of the European pay. However, the industry specifics and relative company size in the US has to be taken into consideration and previous research shows a strong positive correlation between firm size and CEO compensation in both the US (Ang et al, 2009: 1153), Europe (Eichholtz, Kok & Otten, 2008; Ghosh & Sirmans, 2005; Izan, Sidhu & Taylor, 1998; Zhou, 2000) and correlation between net revenues and compensation in Sweden (Larsson & Walle, 2011).

**2.5 Firm characteristics and the impact of executive compensation**

Characteristics of the firm, such as the size, risk, performance, industry and acquisition behaviour affect the compensation. Research has discovered impact of the variables, which among others, co-vary with other factors and are not seen as sole determinators.

### **2.5.1 Size of the firm**

The size effect is a well-documented driver for CEO compensation within compensation literature (Larsson & Walle, 2011). In real terms, the difference between CEO compensation at S&P500 (\$8.2 million) and SmallCap600 (\$2.0 million) show a large compensation premium for managing larger firms. Comparing total compensation between the years 1990 and 2005, the increase has more than doubled (Frydman & Jenter, 2010), with the majority of increase in stock based compensation. On the contrary, Gabaix & Landier (2008) state that the increase in compensation can be fully explained by the increase in market capitalization. Bliss and Rosen (2001) find that the size effect is the main factor positively impacting the CEO compensation post-merger.

Ang et al (2009) investigate the compensation structure in 166 US banks, and find strong positive correlation between increased size and CEO compensation. The larger the bank, the higher CEO compensation. Eichholtz, Kok & Otten (2008), Ghosh & Sirmans (2005), Izan et al (1998) and Zhou (2000) come to the same conclusion. Bliss and Rosen (2001) conclude that previous research explains the correlation between compensation and size, and are implying a higher degree of talent and capacity among managers in larger firms.

Agrawal (1981), Ciscel & Carroll (1980) and Hartford & Li (2007) find a strong significant positive correlation between firm size as well as net sales with an increased CEO compensation. Guy (2000) find the correlation between increased size and compensation to be strongly significant, and argue for the incentives to increase the company size to be very large no matter of the outcome for the stockholders.

### **2.5.2 Takeover threat and firm specific risk**

Agrawal & Knoeber (1998) are describing the competition effect, disallowing managers to extract higher compensation due to the threat of takeover, decreasing the compensation. On the contrary, the risk effect reduces the managers' probability of

keeping the job in the event of a takeover. To compensate the risk of a takeover, which increases the likelihood of a terminated employment and consequently lower wage, the manager will demand a compensating monetary reward. The final outcome has an unclear net effect, although Agrawal & Knoeber (1998: 220) find a larger impact of the risk effect compared to the competition effect. Hence, the likelihood of a manager losing his job will increase the wages, which will have an implication in merger intensive or distressed industries.

The takeover threat and employment risk within the company is linked to the size effect, since larger companies tend to be more exposed and higher competitive for the most attractive positions, called the tournament effect (Gayle & Miller, 2009). Higher firm specific risk, especially in multinational corporations, will cause the CEO to demand a higher risk premium (Oxelheim and Randøy, 2005).

### **2.5.3 Performance and profitability**

Due to increase the in stock based compensation, the linkage between CEO compensation and the performance of the company has become more sensitive (Canyon and He, 2011). In line with agency theory, a positive correlation between CEO pay and firm performance can be measured in Great Britain, Canada, Japan and the US (Agrawal, Makhija & Mandelkar, 1991; Guy, 2000; Kato & Kubo, 2004; Zhou, 2000). Hartford & Li (2007) show evidence of lowered sensibility of compensation post-merger, and find a positive correlation between M&As and CEO compensation despite negative post-merger stock performance. This phenomenon would induce the CEO to undertake acquisitions regardless of performance, and the effect can be seen as another proof of firm size, along with the increasing complexity, as the most important determinant of CEO compensation.

### **2.5.4 Acquisition behaviour**

Greater acquisition activity is correlated with higher CEO compensation (Agrawal & Walking, 1994). Lamberg & Lacker (1987) find a small increase in cash compensation due to acquisition activity, although during circumstances where the

stock price is affected negatively, the positive cash effect is offset by a negative effect in stock holdings. In Bliss & Rosen's (2001) investigation of merger activity in US banks, high-merger (based in dollar values) companies have slightly higher increase in total compensation and significantly higher cash compensation than low-merger banks. They conclude that regardless of the stock market reaction and wealth effect for the shareholders, a CEO can almost always expect a large increase in compensation post-merger. However, personal incentives should not be regarded as the determining factor of a failing merger, and Bliss & Rosen (2001) highlight the implication of necessary restructuring, causing merger waves. The bank sector in their data selection was in the need of restructuring in the 1990's, and the consolidation of the industry allowed US. banks to regain strength and profitability. Grinstein & Hribar (2004) find that in 39 percent of the deals, the acquiring firm compensates the CEO with completion of the deal as the sole reason, in almost all cases with cash bonus. This is related to the effort put in, affected by variables such as longer pre-deal negotiation, larger deal size and more frequent board meetings.

Lamberg & Lacker (1987) suggest that unless firm performance post merger is positive, the increase in top management compensation will not be substantial. This is implying that managers are still disciplined by their companies' performance and that acquisition activity that is not in favour for shareholder wealth will not favour the top management compensation.

Khorana & Zenner (1998) find significant and large effect on cash and total compensation (10.5 percent respectively 4.9 percent), two years post merger. However, when separating good and bad post-performance mergers, there is no positive effect to be found on the worse performing mergers. They conclude that managers are induced to undertake size-enhancing acquisitions due to the positive relationship between compensation and size. However, in the event of a bad-performing acquisition, the present value of the executive compensation will be reduced due to the increased risk of dismissal, which is in line with increased takeover threat due to worse performing company (Ibid).

### 3 Methodology

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*This chapter provides a thorough explanation of the research methodology used for the empirical research and a critical evaluation of the reliability of selected sources and data. Furthermore methodological demarcations to improve the validity of the panel regression are declared and possible weaknesses and the solution for them are explained.*

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#### 3.1 Collection of data

All major research performing accounting/finance-based studies, apart from more specific case studies, use databases when retrieving data due to the huge amount of information needed. Retriever, which is not available to non-licensed researchers provide compensation researchers with a compiled database of executive compensations. Due to a non-existing license for Lund University, this data source has not been available for this paper. We have thoroughly investigated the possibilities of retrieving M&A data from databases such as Zephyr, Reuters 3000 and S&P Capital to make the data collection more efficient. However, when performing random sampling of the information, a well-known source such as Zephyr shows large discrepancies in regards of deals included comparing with annual reports from the companies in question. Several deals are missing each year, which in a regression including OMX30 results in a too high bias. To guarantee the highest possible reliability and to include as many deals as possible, the M&A data has been retrieved manually from the annual reports, complemented with communication with the companies in question.

Inconsistent reporting is found for the M&A data in annual reports. Some deal sums are confidential; hence no official purchase sum is then reported. In a substantial amount of cases, the total amount spent on acquisitions is reported although the total number is not disclosed. Small acquisitions are declared insignificant, hence not

worth mentioning in the annual report. In most cases, we have been able to retrieve this information from press releases or financial newsletters from the actual year.

ABB is reporting salaries and M&As in CHF/USD, which has been converted to SEK for all years, using the average annual exchange rate from Riksbanken (2012) for salary statistics and specific spot rate for the date of merger. The same principal has been used for all companies reporting part of the information in other currencies than SEK.

In the case of CEO change mid year, a pro rata method has been used to display the total remuneration for the CEO during the calendar year, not exclusively for one specific executive. Short-term incentives are usually paid out one year retroactively, and have been deferred to the correct calendar year.

### **3.2 Methodological demarcations**

An important implication of our methodological demarcations is excluding merger performance. M&A Performance can be measured by both account-based and stock-based measures, to find how each merger create or destroy value for the acquiring firm. We have decided to exclude the impact of every single acquisition, in order to measure the annual firm performance, which is a measure including performance of all acquisitions made during the year, rather than a case study of all the 821 mergers included in our sample. Due to the lack of databases including the Swedish mergers, this would require an additional case study on top of our extensive empirical material, which due to limited time was impossible. In our regression study, using panel data, we have decided to use an accounting based variable as measurement for the firm profitability. This will measure long-term firm performance, rather than the short-term value creation from mergers in the eyes of the stock market. In addition, this will in the long run indicate if a larger CEO pay is significant with increased M&A behaviour, and consequently, long-term firm performance.

Pooling for industry factors, which might affect both firm specific risk and compensation structures, would have been of necessity in a larger study. Due to the

extent of this paper and our belief of these variables as lesser impacting our sample, we have excluded these variables in the empirical research.

Option based compensation and long-term incentives are a growing part of the executive compensation. However, when performing a regression analysis, deferring the pay out from a five-year long-term stock plan, the same provides an enormous question of what year the “actual performance” has been made. The firm usually bears the expense at the execution date, while the executive receives the pay out at expiration date. Another possibility is to calculate the yearly compensation for the whole maturity. All three methods will in a regression give a flawed correlation to merger activity *the specific year*. When measuring effects due to long-term incentives, the compensation structure will rather have an impact on several years of M&A decisions and could possibly be measured in a larger empirical study, but not in a limited research sample as OMX30. In addition, firms inconsistently reporting option holdings, would have made the regression biased. A few companies are reporting the actual expense of the options, others report using the Black and Scholes-model, resulting in an unclear and unobservable comparison. Given the difficulties in defining, measuring and collecting the long-term incentives, all long-term incentives have been excluded from the empirical research.

Divestitures are rarely disclosed properly, resulting in findings too inconsistent to include in the regressions. However, when comparing with researchers within the representative area, such as Hartford & Li (2007) and Grinstein & Hribar (2004), the empirical evidence mainly finds correlation and patterns between compensation and acquisitions made. For the sake of consistency, investment companies such as Investor, Industrivärden and Kinnevik, which have a higher degree of acquisitions and divestitures each year, have been excluded not to affect the regression. Inconsistent data, both in the sense of acquisitions and compensation, have resulted in the exclusion of both Astra Zeneca and Nokia.

Acquisitions, disregarding of size or ownership stake, are included in the data sample. However, joint ventures and strategic alliances with a shared ownership and risk, are not included. Capital injections, investments in new property or plants are counted as organic growth, hence not included in acquisition statistics.

Due to the setting of our panel data research, we have made another methodological demarcation for the effect of a CEO change in the firm and a possible new type of contract. We are not performing a case study of specific deals or CEOs, and will in our regression measure the compensation as a measure of the total compensation from the firm, disregarding *who* actually is the executive president. In the rare case of lump sum compensations, we have excluded the one time cost. After controlling for extreme values and large change in compensations, the only major CEO change in the sample is the one of Electrolux and CEO Keith McLoughin, who received a compensation substantially higher than his predecessor. Hence, Electrolux has been excluded from 2000-2009 due to the noise in both fixed, variable and total compensation.

### **3.3 Selection of measurements**

#### *Compensation: CEOF, CEOV, CEOT*

The compensation of the executive president is measured with three variables; *fixed*, *variable* and *total* compensation. Total compensation consists of the sum of fixed and variable remuneration and does not include long-term incentives, pensions or minor compensations such as e.g. leasing car or official residence.

#### *Company Size: SIZE*

The size is measured through total market capitalization (Amount of shares \* Share price as of 31 December each year), providing an indication of the acquiring company's relative size.

#### *Net sales: NS*

Net sales within the firm are the reported number of total sales in the Income Statement.

*Profitability: PROF*

As company performance profitability PROF is measured through calculating operational profit divided by total equity excluding all minority interests, indicating increasing or decreasing profitability over time.

*Merger and acquisitions: NUMBERMA, AMOUNTMA, AVERAGEMMA, MASIZE.*

To measure the M&A activity, four variables are used. The number of total M&As the specific year, the total amount of M&As in SEK, the average M&A ( $\frac{AMOUNTMA}{NUMBERMA}$ ) and the relative sum of acquisitions to the company size ( $\frac{AMOUNTMA}{SIZE}$ ). The total number of M&As and the total amount of M&As will attempt to measure similar findings as Grinstein & Hribar, while the relative sum of acquisitions to the company size and average M&A size are intended to measure relative size as investigated by Larsson & Finkelstein (1999) and Jarrel & Poulsen (1989).

### **3.3.1 Regression methodology**

The multiple panel regression is performed in Eviews to identify potential correlations with the dependent variable compensation. All numerical variables are logged (CEO/SIZE/NS/AMOUNTMA/AVERAGEMMA to adjust for size effect and explain the correlation in percentage rather than in SEK. Due to the high likeliness year X-1 performance impacting the compensation year X, the independent variables PROF/NUMBERMA/AMOUNTMA/AMOUNTMASIZE have been lagged.

This allows the regression to explain the dependence between the dependent variable in year X and the lagged independent variables both in year X and X-1. Acquisitions made at the end of one year would also have been deferred to the “wrong” year, allowing the lagging effect adjust for these potential errors. An extensive data test has been performed, controlling the data sample for; heterogeneity, heteroscedasticity, normality, multicollinearity and autocorrelation. Heterogeneity has been found in the sample, which has been adjusted using fixed cross-section/time effects. Further explanation of the econometric tests can be found in Appendix 2.

### **3.3.2 Clustered observations in the sample**

To use the extensive data sample, the fixed companies with the highest and lowest compensations paid have been sorted out in a clustered observation in the sample over the eleven years. This provides a total average for the whole data period in the sample to give indications in possible trends not observed in the regression analysis. Although this does not provide any statistically significant patterns, it provides a further explanation that might explain correlations with behaviour discussed in the theoretical framework.

### **3.4 Source discussion**

The theoretical framework reflects the latest updated framework of scientific articles and surveys, with a depth to the findings of earlier studies and research. Previous research of both compensation and M&A are mainly executed on US conditions, leaving a large undiscovered field in the international presence, especially at smaller and less observed markets such as Sweden. The articles have been collected through the database Summon, provided by Lund University. In addition, written sources from media and articles are used to include the criticism from public opinions. In our framework, we have included as many contradicting arguments and findings as possible to provide a fair comparison.

#### **3.4.1 Validity**

We have adapted the research methodology of the compensation literature and focused on the account based measures as the determinant of the firm profitability. A relative industry measure could have been used, but due to the common factor being the size of the firm with greatly varying industries, this adjustment would have required a substantially larger sample.

The total compensation structure has been largely impacted due to the internalization factor of the largest firms in Sweden, as in example of the new CEO in Electrolux in 2010. This gives a higher likelihood of similarities and a more interesting comparison

with international research than highly domestic firms compensation structures would. Long-term incentives are as shown in chapter 2.4.1, a lesser part of the salary in Sweden than internationally, reducing the issue with decreasing explanatory value due to its exclusion.

Including CEO turnover would have provided a higher explanatory value, although our empirical methodology would have had to be substantially adjusted. We controlled for extreme values and excluded companies that would have created bias, why we find the effect to be of lesser impact in our sample.

To possibly include stock and option-based remuneration, retrieving the data from databases would have been of highest importance, disallowing for an explanatory variable for the changed behaviour due to long term incentive plans.

### **3.4.2 Reliability**

The regression study and the analysis are based on primary public information (University of Maryland, 2010) collected from annual reports of each company, complemented through contact with the Investor Relations. As mentioned in Chapter 3.1, the use of information from databases has been rejected due to too high inconsistency in our random sampling. Due to our narrow sample of OMXS30, higher frequency of missing observations would have had a too high impact on the final regression results, giving a low credibility to our findings. Instead, we find the Annual Reports the most reliable source of information due to the IFRS change in 2002, implementing a sufficient reporting standard. This has allowed the compensation structures and M&A statistics to be compared in the same sample. The reports are statutory information, provided by the companies' management, audited by external accounting firms, resulting in the most reliable source available. The responsible accounting firm is changed roughly every fifth year, why some information is reported different from one year to another (Knapp, 1992), requiring precise comparing and adjustment of the numbers. Although this requires extensive work and elaborate precision, we find this to be one of the most important factors creating significant importance for our conclusions. This adds more observations in regards of

number of M&As and purchase sums, allowing us to contribute with a higher sample precision to the field of research.

However, we do raise a red flag concerning the reporting standards of today. Although, we have managed to get a fully acceptable data sample, this has required several data sources and manual complementing by contacting the firms, in addition to verifying with press releases. Undisclosed purchase sums due demands from the sellers and acquisitions excluded due to “insignificant impact” on the overall firm, provides a large area where the average stock holders are kept uninformed, which we find as heavy neglecting to the shareholder interest.

## 4. Empirical results

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*This chapter begins with a short repetition of the variables used in the multiple regressions. Three regressions and their results are presented, explaining the measured significant correlations and explanatory variables. At last, we present an eleven year average M&A and firm specific for the five companies with the highest and the lowest compensation to provide a further explanation of the results.*

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### 4.1 Multiple regressions

A regression study is conducted to demonstrate the significance of the relationship between dependent variables; Fixed, Variable and Total salary. For the complete regressions, the viewer is referred to Appendix 2.

CEOF – Fixed compensation to CEO

CEOV – Variable (compensation to CEO)

CEOT – Total compensation to CEO

NS – Net sales

SIZE – Market Capitalization

PROF – Profitability (Operating profit/Total Equity)

NUMBERMA – Number of M&As

AMOUNTMA – Total amount of M&As

MASIZE – Relative size (Total amount/Market Capitalization)

AVERAGEMA – Average amount of acquisition measured in SEK

#### 4.1.1 Fixed compensation

The regression using fixed CEO compensation as dependent variable includes 255 out of 312 possible observations with a  $R^2$  value of 0.73 out of 1, indicating a high explanatory factor for the fixed compensation. To adjust for heterogeneity, fixed

effects have been used. Fixed salary has a strong significant correlation and is measured with net sales while for every percentage increase, the fixed salary goes up 0.23%. The annual number of M&As, although not the lagged variable, is significant below the one percentage confidence interval, indicating a strong positive correlation. For each additional M&A made, the fixed salary increases with 0.0148 %. The total amount of M&As in SEK and the average size of each M&A, both have a probability value below the five percent interval, indicating strong significant correlation. For every percentage increase in total amount M&As, the fixed salary decreases with - 0,13 %, while every percentage increases in average M&A size increase the fixed salary with 0.13 %.

Dependent Variable: CEOF			R <sup>2</sup>	0.733305
Sample (adjusted): 2001 2011			Adjusted R <sup>2</sup>	0.674324
Periods included: 11			F-statistic	12.43298
Cross-sections included: 26			Prob(F-statistic)	0
Total observations: 255			Durbin Watson	1.427691
Dummy variables: Cross-section and period / fixed				
Variable	Coefficient	Standard Error	t-Statistic	Probability
C	4.162888	0.937939	4.438338	0
SIZE	0.022222	0.049131	0.452301	0.6515
NS	0.230753	0.092059	2.506575	0.013
NUMBERMA	0.014893	0.005327	2.795555	0.0057
NUMBERMA(-1)	0.001081	0.003182	0.339755	0.7344
PROF	6.82E-05	9.48E-05	0.719397	0.4727
PROF(-1)	7.97E-05	9.80E-05	0.8127	0.4173
AMOUNTMA	-0.131447	0.052692	-2.494633	0.0134
AMOUNTMA(-1)	0.002905	0.002788	1.042167	0.2985
AVERAGEMMA	0.131116	0.053092	2.469613	0.0143
MASIZE	0.000427	0.000792	0.539063	0.5904
MASIZE(-1)	-0.000504	0.000523	-0.962174	0.3371

Table 1. Regression with fixed CEO compensation as dependent variable

#### 4.1.2 Variable compensation

Variable compensation includes 252 observations out of 312 with a R<sup>2</sup> value of 0.42. To adjust for heterogeneity, cross-section fixed effects has been used. None of the independent variables reach a satisfactory significance level, with no measured correlations as a result.

Dependent Variable: CEOV			R <sup>2</sup>	0.423599
Sample (adjusted): 2001 2011			F-statistic	4.38901
Periods included: 11			Prob(F-statistic)	0
Cross-sections included: 26			Durbin Watson	1.714956
Total observations: 252				
Dummy variables: cross-section / fixed				
Variable	Coefficient	Standard Error	t-Statistic	Probability
C	-5.72709	12.56745	-0.455708	0.6491
SIZE	-0.21664	0.726383	-0.298246	0.7658
NS	1.200286	1.327268	0.904328	0.3668
NUMBERMA	-0.094456	0.099211	-0.952073	0.3421
NUMBERMA(-1)	0.014557	0.059533	0.244519	0.8071
PROF	-1.23E-06	0.001776	-0.000691	0.9994
PROF(-1)	-0.000285	0.001838	-0.155207	0.8768
AMOUNTMA	1.592573	0.993154	1.603552	0.1103
AMOUNTMA(-1)	0.019513	0.052983	0.368288	0.713
AVERAGEMA	-1.548087	1.002632	-1.544023	0.1241
MASIZE	-0.011369	0.015015	-0.757183	0.4498
MASIZE(-1)	0.003976	0.009685	0.410513	0.6818

Table 2. Regression with variable CEO compensation as dependent variable

### 4.1.3 Total compensation

The regression with total salary as dependent variable, which is the total of fixed and variable remuneration, results in a R<sup>2</sup> factor of 0.73. This indicates a high explanatory factor for the regression, which contains 253 out of 312 possible observations. Heterogeneity is adjusted using cross section and time-variable fixed effects. The only significant variable with a positive correlation to total salary is the net sales. For every percentage increase in net sales, the total compensation increases by 0.28%.

Dependent Variable: CEOT			R <sup>2</sup>	0.733212
Sample (adjusted): 2001 2011			F-statistic	12.30757
Periods included: 11			Prob(F-statistic)	0
Cross-sections included: 26			Durbin Watson	1.458111
Total observations: 253				
Dummy variables: cross-section and period / fixed				
Variable	Coefficient	Standard Error	t-Statistic	Probability
C	3.320859	1.09451	3.034106	0.0027
SIZE	0.06714	0.057017	1.177554	0.2403
NS	0.277243	0.106168	2.61136	0.0097
NUMBERMA	0.002927	0.006148	0.476078	0.6345
NUMBERMA(-1)	0.003818	0.003663	1.042357	0.2985
PROF	-3.99E-05	0.000109	-0.366422	0.7144
PROF(-1)	-4.01E-05	0.000113	-0.35606	0.7222
AMOUNTMA	-0.034863	0.061099	-0.570604	0.5689
AMOUNTMA(-1)	0.001118	0.003199	0.349374	0.7272
AVERAGEMMA	0.036145	0.061543	0.587315	0.5576
MASIZE	0.000348	0.000909	0.382681	0.7024
MASIZE(-1)	-0.000475	0.000603	-0.788642	0.4312

Table 3. Regression with total CEO compensation as dependent variable

## 4.2 Clustered observations in the sample

To provide a further explanation for the regressions, the five companies with the highest and the lowest compensations are pooled out to create an annual average. The annual average is presented below as the compiled findings for all eleven years, to indicate certain trends in the data sample.

### 4.2.1 Fixed compensation

Fixed salary	Average salary	Stock return	Size (Mn)	Net sales (Mn)	Profitability	Number M&As	SEK (Mn) M&As	Average SEK (Mn) M&A	SEK M&A/Size
Top 5	14283151	12.1%	140551	117120	18.70%	4.0	3818	1046	4.5
Bottom 5	4886405	29.7%	36275	28635	34.60%	1.7	614	261	3.4

Table 4. Clustered Sample of fixed compensation

When sorting out the highest and lowest fixed compensations, several effects are clear. Higher fixed salary seems to coincide with higher sales and firm size, lower average stock return and profitability, as well as an increase in number of M&As,

larger M&As and higher total purchase sum. Relative sum of M&As to total firm size is however insignificant between the two categories

#### 4.2.2 Variable compensation

Variable salary	Average salary	Stock return	Size (Mn)	Net sales (Mn)	Profitability	Number M&As	SEK (Mn) M&As	Average SEK (Mn) M&A	SEK M&A/Size
Top 5	7764373	18.7%	102412	80210.1	28.1%	5.0	2771	719	4.9
Bottom 5	150744	1.7%	11809	65545.5	23.0%	2.8	2602	1013	3.2

Table 5. Clustered Sample of variable compensation

The variable compensation has by default a large spread from the lowest to the highest paying companies, due to several companies reporting zero variable compensation some years. The market capitalization is highly different, where the highest paying companies have 102 billion in market capitalization compared to roughly 12 billion for the lowest compensating. The high variable compensators have a substantially higher stock return, higher number of M&As. However, the total sum of M&As and the relative size do not show any clear patterns.

#### 4.2.3 Total compensation

Total salary	Average salary	Stock return	Size (Mn)	Net sales (Mn)	Profitability	Number M&As	SEK (Mn) M&As	Average SEK (Mn) M&A	SEK M&A/Size
Top 5	20372844	17.2%	122114	110754	22.4%	4.5	3781	2027	4.7
Bottom 5	6174156	21.7%	68382	32823	32.3%	1.2	1102	573	5.5

Table 6. Clustered Sample of total compensation

Compiling both fixed and variable salary, the spread between the top five highest paid average salaries and the bottom five is almost 15 million. The difference in size is substantial; 120 million for top five compared to 70 million for bottom five, with an even larger difference in net sales. Bottom five has a higher profitability, and a slightly higher stock performance. The top compensated perform three more M&As annually, with a total of 2.5 billion more than the bottom five total annual M&As of 1.1 billion. The average deal size is larger for the highest paid, while the relative size of the purchase is one percent higher; 5.5 percent of the total firm size compared for the bottom five.

## 5 Analysis

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*This chapter ties together the theoretical framework and empirical research on foreign market with our findings on the Swedish market.*

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### 5.1 Regression analysis

#### 5.1.1 Fixed compensation

The regression analysis provides interesting patterns in line with the theoretical framework. Increasing net sales, which can be explained as an indirect measurement of the firm size, has a direct positive impact on the fixed salary. This confirms the firm size effect, described in Chapter 2.5.1 by Hartford & Li (2007) among others. Although no correlation is significant for the profitability in the regression study, a clear pattern from the Clustered Sample in Chapter 4.2 is observed with higher stock return and higher profitability for the group with the lowest fixed compensation. This effect indicates that an increased number of- and larger M&As are resulting in a higher fixed compensation, however insignificantly measurable and not controlled for any firm specific risks.

The results from the regression study show significant, although negative correlation, between increasing total amount of M&As and fixed compensation. This contradicts previous researches and when observing the evidence from 4.2.1, the negative correlation seems to be misleading. Top 5 acquire for an average of 3.8 billion annually, compared to 600 million for Bottom 5. Screening the data sample for large acquirers, Telia and Volvo, both performing some of the largest acquisitions observed, have a lower average salary than the rest and with a worse than average performance. This could possibly be the explanation for the illogical negative correlation discovered in the regression, and we therefore assume a possible flaw in our data sample as the most likely explanation to the pattern.

Expected return for Small Cap and Large Cap firms differ, where the smaller companies generally are expected to generate a higher return on equity, explained in Larsson & Walle (2011). Although this most probably has an impact on the results for the Clustered Sample in 4.2, it still provides an interesting observation and implies that not only do the largest firms pay the highest fixed salaries, they also perform more and larger acquisitions with a higher total sum spent on acquisitions. Since larger firms are able to acquire for relatively higher sums, this pattern does not explain solely for fixed salary implying larger acquisitions. However, the regression analysis has been adjusted for firm size effects (measuring relative numbers), strongly indicating a confirmation for the effects described.

In the regression analysis, a significant positive correlation between the number of M&As and the average M&A size is found with increasing fixed compensation. Including the observed patterns from the Clustered Sample in 4.2.1, we find a strong link of increased fixed compensation with the M&A behaviour. Bliss and Rosen (2001), who find the firm size as the main explanatory variable to increase in post-merger compensation, give similar indication as the results from our data sample. Increased firm performance has no significant correlation to fixed compensation, giving no explanatory variable of the compensation being linked to firm performance. However, we do find higher merger activity, hence increasing size, to be positively correlated to fixed compensation, which supports Bliss and Rosen (2001), Eichholtz, Kok & Otten (2008), Ghosh & Sirmans (2005), Izan et al (1998) and Zhou (2000), who find the increase in firm size as the main explanatory variable to post-merger compensation, not post-merger performance. In addition, the positive relation between number of M&As and fixed compensation goes in line with Grinstein & Hribar (2004), who find compensation paid out after merger completion, without taking any performance into consideration. Given the significant correlation between increased number of M&As and compensation, this is an indication of the presence for the flawed incentive system on the Swedish market.

### **5.1.2 Variable compensation**

The regression analysis provides no significant correlations with the independent

variables, hence no explaining variables, contrary to an expected correlation with e.g. the number and average amount of M&As, similar to the fixed compensation. Observing the Clustered Sample in 4.2.2, we do find several interesting patterns. The largest compensations tend to be paid by the largest firms, which could be seen as a result due to the lack of firm size adjustment unlike the regression study. An indication of mergers raising the variable compensation is the numbers of M&As, 5.0 for the Top 5 compared to 2.8 for Bottom 5. Although the performance of the more frequent mergers are not explained, this indicates that more frequent mergers increase the variable salary. However, the Clustered Sample shows that higher variable salary tends to result in higher relative stock performance and slightly higher profitability. This confirms studies presenting evidence of a positive correlation between CEO compensation and firm performance, described by Agrawal, Makhija & Mandelkar (1991), Guy (2000), Kato & Kubo (2004) and Zhou (2000). The presence of a governing factor is found and the lowest variable compensations paid are consequently caused by a lower stock performance and profitability, indicating a penalizing of the variable compensation from bad mergers, in line with Bliss & Rosen (2001) and Grinstein & Hribar (2004). However, this does not account for how large the offsetting effect performance based pay is compared to the size effect of the fixed compensation.

Some support is given to Larsson & Finkelstein (1999) and Kitching (1967), who emphasize the relative size as an important determinant of synergy potential, hence the merger performance. If CEOs were compensated with higher variable salary, as the theory states, the higher relative deal size, which should enhance the merger performance, would be positively correlated to an increasing variable compensation. However, due to insignificance from the regression study and the clustered observations in the sample not being enough reliable, we make no clear conclusion and emphasize the importance of further investigation.

### **5.1.3 Total compensation**

Total compensation has a significant positive correlation with net sales, an even stronger impact than in the regression with fixed compensation. However, no other

significant correlations are measurable, which we most probably find to be caused by including the variable salary, which previously was insignificant for all the independent variables in the regression.

In Chapter 4.2.3, Top 5 total compensation has twice the market capitalization, which indirectly explains why the average and total M&A size is substantially larger. However, the number of deals are 4.5 per year, compared to 1.2 for the Bottom 5, as well as lower stock return and lower profitability. We find the same explanation for total compensation as with the fixed compensation, where the size effect plays a large part of the impact on compensation size. The number of M&As are more frequent, implying that the highest total earners perform more acquisitions. Although no significance can be measured from the regression, this gives an indication of more frequent M&As having a positive impact on total compensation.

## **5.2 Further implications**

In line with the findings by Bliss & Rosen (2001), we find indications that more frequent acquisitions tend to increase the fixed salary. Acquisitions have a confirmed direct effect on cash compensation after a completed merger in 39 % of the deals studied by Grinstein and Hribar (2004). We find similar significant evidence on the Swedish market from our regression analysis and Clustered Sample study, where increased M&A activity, both in number of deals and amount of deals, increase compensation regardless of performance. This creates a large incentive for CEO's to engage in M&As to increase the company size in an attempt to increase the total compensation. This should not be interpreted as evidence for neither value creation nor value destruction from M&As, rather explain the direct correlation between compensation and acquisition behaviour.

Long-term based compensation has an offsetting factor in the case of decreasing firm performance, cancelling out the majority of the size effect in the studies performed by Khorana & Zenner (1998). In addition, private CEO wealth invested in the own stock also has an impact on the risk behaviour and incentives, which may change the merger behaviour. As the fixed and short-term compensation accounts for roughly 80

percent of the total compensation, compared to less than 50 percent in US firms, we find the implication for the Swedish firms to have a larger impact by the firm size effect, rather than decreased option or stock holdings value.

As with all human behaviour, and as with acquisition behaviour, several underlying factors exist. As Larsson (1990) mentions, the three different rationales of initiating a merger, can exist without any implication of the other. Most likely, the manager would not initiate a merger if (s)he by default knew that from an economical rationality, the decision would for certain cause capital destruction. However, increased sales or higher self-sufficiency of raw material is in line with creating shareholder value at the same time as the compensation is effected positively.

Stock analysis often counts in the factor of future potential successful acquisitions, assumed to increase the firm value. Hence, the increased risk of unprofitable M&As is built accounted for in the future share price expectations. Although acquiring patents or new techniques might not always result in huge returns, they could provide a way of keeping innovation at top within the company, giving motivation for the organizational survival rational as Larsson & Finkelstein (1999) mention. This provides an explanation of the M&A behaviour as driven by other factors than remuneration, although the side effect results in a larger company, requiring higher skills and effort from the CEO. In the end, this results in an increase in remuneration, which was not the original intention from the CEO. We find it unlikely that the patterns between merger behaviour and changed compensation are the direct or sole result of fraudulent behaviour.

Managing a larger firm does require higher skills and does put the CEO in the spot light, being watched every move. With this said, we put an emphasis on the fact that the increased salary necessarily does not have to be a negative factor for the shareholders. If a CEO manages to increase sales only by one percent, in case of Ericsson, it would result in SEK 2.3 billion larger sales volumes. Rewarding the CEO with a salary of SEK 15 million or 18 million is from a shareholders point of view irrelevant as long as the value created is higher.

## 6. Conclusion

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*In this chapter we will bring forward the analysis of the empirical study and combined with previous research, an overall conclusion of M&A Behaviour is drawn.*

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### **Do compensation and flawed incentive systems explain M&A behaviour in Swedish firms?**

Previous attempts within compensation literature have touched upon the impact of personal motives changing the firms' investment behaviour, in conflict with the interest of shareholders. The absurd incentive problems are rooted in compensation structures that do not take performance into account, or measure the same in an improper way. Hartford & Li (2007) and Bliss & Rosen (2001) find that disregarding the firm performance, firm size always has a significant positive impact on the total compensation. This is in line with our measured correlation with net sales in the regression analysis and our combined results provide the conclusion that the firm size is one of the main impacting variables on the Swedish markets.

Since inorganic growth is the quickest way of achieving growth, the incentive for an executive to increase the number of acquisitions is large when the governing factor seems to disregard of the post-acquisition performance. Given the combined results from our empirical researches, we do observe a possible lack of governance affecting the M&A decisions.

We find no evidence explaining the variable compensation, based on performance measurements, to be inappropriately implemented. Due to the lack of long-term incentives, no definite conclusion can be drawn whether stock- or option based compensation are cancelling out the increase in fixed compensation post-merger or its impact on M&A behaviour. However, in regards of the large proportion of fixed salary in the sample, and given the larger impact of the firm size effect, we find

evidence for a changed average compensation in Swedish firms when increasing the numbers of M&As. This concludes that Swedish CEOs with high fixed salary tend to make more frequent acquisitions and larger acquisitions. Consequently, an explanation provided is that changed M&A behaviour *do* change the CEO compensation, with firm size as the main impact. This does not answer whether executives actually making fraudulent decisions to increase their compensation can explain the effect, or if the board of directors compensates the CEO for increased responsibility or performance. Instead it provides evidence for the mere existence of a flawed compensation structure, with the exact causing implication to still is unaccounted for.

With this in mind, this paper provides the conclusion and explains that the rationales behind M&As in Swedish firms are impacted by something else than value creating actions. Although flawed compensation structures do not account for the complete explanation, we argue for our findings to prove the mere existence of the inappropriate incentive systems and a changed M&A behaviour as a result. We know that managers tend to exploit misalignments or “free lunches”, why the executives of the largest Swedish firms do show evidence of a changed M&A behaviour in regards of the compensation systems.

### **6.1 Limitations and future research**

Our empirical findings have not been adjusted for relative performance or firm specific risk, which is of some importance for the shareholders. If a private equity firm goes bust in nine out of ten cases, this has been taken into account for in the pre-defined risk. However, companies such as Volvo have infrequently acquired relatively large targets, why the failure or success is of greater importance with a lower risk priced in the stock than frequently acquiring firms. The relative risk factor is an interesting factor, especially when performing a larger sample study, and should be taken into consideration in future research.

Our results suggest that when corporate governance is limited, as is the case with manager-controlled firms, acquisitions seem to be motivated for their contribution to

firm expansion, which tends to positively impact CEO rewards. When corporate governance is more effective due to the presence of significant external stockholders or when managers hold a larger ownership stake, acquisitions seem to be motivated by their financial potentials. Managerial ownership is confirmed a factor decreasing number of M&As by Bliss and Rosen (2001). Hence, the ownership structure, with its implication on governance, should be taken into account when performing future studies on the Swedish market.

CEO change and the implication of new behaviour is an interesting parameter that could be added for higher explanatory value, especially when extending the research on the Swedish market regarding CEO compensation and M&A Behaviour.

We have observed major discrepancies and flaws while retrieving information from the annual reports, which raises the question regarding the reporting standards as of today. We put an emphasis on a future investigation regarding the mandatory disclosure of CEO compensations, but mainly M&A statistics. In order to give the shareholders full insight, we find it unreasonable not disclosing purchase sums due to confidentiality or explaining the acquisitions as having “no impact worth mentioning”.

## 7. References

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## **7.1 Annual reports**

ABB

Alfa Laval

Assa Abloy

Astra Zeneca

Atlas Copco

Boliden

Electrolux

Ericsson

Getinge

H & M

Handelsbanken

Investor  
Lundin Petroleum  
MTG  
Nordea  
Nokia  
Sandvik  
SCA  
SCANIA  
SEB  
Securitas  
Skanska  
SKF  
SSAB  
Swedbank  
Swedish Match  
Tele2  
Telia  
Volvo

## **Appendix 1**

Appendix 1 contains the complete data material used in the empirical research. For further questions and access regarding the data material, the reader is referred to contact the authors.

## Appendix 2

This appendix provides a detailed description of our regression study. All three regressions are tested for heterogeneity, heteroskedasticity, multicollinearity and un-linearity before the final regression is performed.

### Regression 1: Total CEO compensation

1. Heterogeneity is controlled by using fixed cross sectional and period fixed effects. When looking at the f- and chi-square, the probability indicates heterogeneity.

Redundant Fixed Effects Tests

Equation: CEOTFIXED

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	10.295863	(25,206)	0.0000
Cross-section Chi-square	205.108890	25	0.0000
Period F	2.366261	(10,206)	0.0114
Period Chi-square	27.509989	10	0.0022
Cross-Section/Period F	10.923189	(35,206)	0.0000
Cross-Section/Period Chi-square	265.493283	35	0.0000

2. To check whether random effects or fixed effects should be used, we do a Hausman test with random cross-section effects. Our p-value rejects the null hypothesis, which indicated that we should use fixed effects to adjust for heterogeneity.

Correlated Random Effects - Hausman Test

Equation: CEOTFIXED

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	34.090409	11	0.0003

3. Performing a new regression with the squared residuals as dependent variable, we control for heteroskedasticity between the residuals and the independent variables. This results in a p-value of 0.91, stating no heteroskedasticity in this regression.

Dependent Variable: VDTRESID<sup>2</sup>

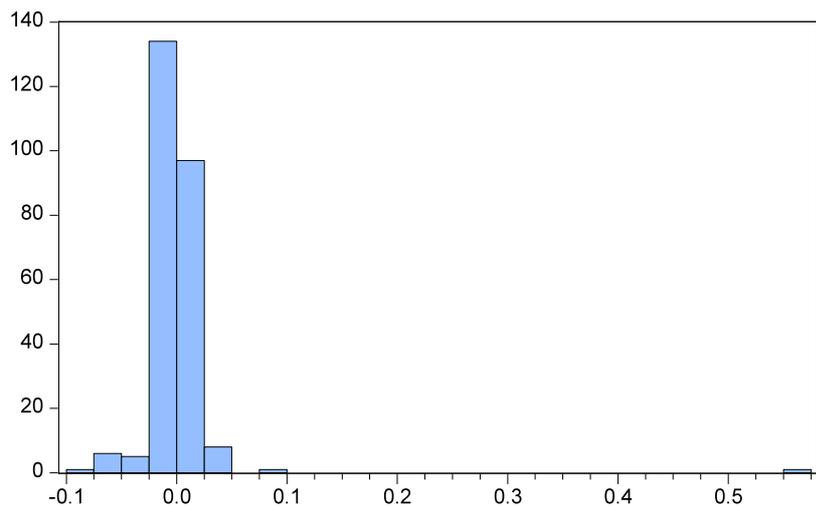
Method: Panel Least Squares

Date: 05/14/12 Time: 14:49  
Sample (adjusted): 2001 2011  
Periods included: 11  
Cross-sections included: 26  
Total panel (unbalanced) observations: 253

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.092352	0.084521	-1.092653	0.2756
SIZE	0.002511	0.009068	0.276874	0.7821
NS	0.006544	0.009636	0.679077	0.4977
NUMBERMA	0.003087	0.002048	1.507024	0.1331
NUMBERMA(-1)	-0.001092	0.001188	-0.918937	0.3590
PROF	1.30E-05	3.97E-05	0.326766	0.7441
PROF(-1)	2.23E-05	4.06E-05	0.547645	0.5844
AMOUNTMA	-0.029122	0.019512	-1.492499	0.1369
AMOUNTMA(-1)	0.001110	0.000982	1.130619	0.2593
AVERAGEMA	0.029420	0.019799	1.485916	0.1386
MASIZE	-0.000123	0.000312	-0.395497	0.6928
MASIZE(-1)	1.44E-05	0.000200	0.071873	0.9428
R-squared	0.021443	Mean dependent var	0.011033	
Adjusted R-squared	-0.023222	S.D. dependent var	0.043370	
S.E. of regression	0.043870	Akaike info criterion	-3.368890	
Sum squared resid	0.463829	Schwarz criterion	-3.201298	
Log likelihood	438.1645	Hannan-Quinn criter.	-3.301462	
F-statistic	0.480089	Durbin-Watson stat	1.163752	
Prob(F-statistic)	0.914636			

4. When studying the Covariance Matrix for extreme out layers, we find no extremities. This rules out the presence of multicollinearity.

5. Performing a residual diagnostic, the probability and Jarque-Bera value indicate that non-linearity does not exist. Normal distribution is ok.



Series: Standardized Residuals	
Sample 2001 2011	
Observations 253	
Mean	5.49e-20
Median	-0.002474
Maximum	0.555496
Minimum	-0.089555
Std. Dev.	0.039188
Skewness	11.26362
Kurtosis	161.3041
Jarque-Bera	269525.8
Probability	0.000000

6. Given these statistics, we adjust the heterogeneity with fixed cross-section/period fixed effects. This gives us the following final regression.

Dependent Variable: CEOT  
 Method: Panel Least Squares  
 Date: 05/14/12 Time: 14:58  
 Sample (adjusted): 2001 2011  
 Periods included: 11  
 Cross-sections included: 26  
 Total panel (unbalanced) observations: 253

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.320859	1.094510	3.034106	0.0027
SIZE	0.067140	0.057017	1.177554	0.2403
NS	0.277243	0.106168	2.611360	0.0097
NUMBERMA	0.002927	0.006148	0.476078	0.6345
NUMBERMA(-1)	0.003818	0.003663	1.042357	0.2985
PROF	-3.99E-05	0.000109	-0.366422	0.7144
PROF(-1)	-4.01E-05	0.000113	-0.356060	0.7222
AMOUNTMA	-0.034863	0.061099	-0.570604	0.5689
AMOUNTMA(-1)	0.001118	0.003199	0.349374	0.7272
AVERAGEMA	0.036145	0.061543	0.587315	0.5576
MASIZE	0.000348	0.000909	0.382681	0.7024
MASIZE(-1)	-0.000475	0.000603	-0.788642	0.4312

#### Effects Specification

Cross-section fixed (dummy variables)  
 Period fixed (dummy variables)

R-squared	0.733212	Mean dependent var	7.032713
Adjusted R-squared	0.673638	S.D. dependent var	0.203764
S.E. of regression	0.116406	Akaike info criterion	-1.297432

Sum squared resid	2.791387	Schwarz criterion	-0.641032
Log likelihood	211.1252	Hannan-Quinn criter.	-1.033340
F-statistic	12.30757	Durbin-Watson stat	1.458111
Prob(F-statistic)	0.000000		

## Regression 2: Fixed CEO compensation

1. Performing a redundant fixed effects test for the fixed pay, our results indicate heterogeneity.

### Redundant Fixed Effects Tests

Equation: CEOFFIXED

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	9.641891	(25,208)	0.0000
Cross-section Chi-square	196.245478	25	0.0000
Period F	4.035384	(10,208)	0.0000
Period Chi-square	45.215692	10	0.0000
Cross-Section/Period F	9.983324	(35,208)	0.0000
Cross-Section/Period Chi-square	251.372456	35	0.0000

2. Performing a Hausman test with cross-random effects gives the probability of less than 1%, rejecting the null hypothesis. Fixed effects should hence be used when adjusting for heterogeneity.

### Correlated Random Effects - Hausman Test

Equation: CEOFFIXED

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	29.337968	11	0.0020

3. Performing a new regression with the squared residuals as dependent variable, we control for heteroskedacity between the residuals and the independent variables. This results in a p-value of 0.39, stating no heteroskedacity in this regression.

Dependent Variable: VDFRESID^2  
 Method: Panel Least Squares  
 Date: 05/14/12 Time: 16:31  
 Sample (adjusted): 2001 2011  
 Periods included: 11  
 Cross-sections included: 26  
 Total panel (unbalanced) observations: 255

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.036456	0.505497	0.072120	0.9426
SIZE	0.020347	0.026479	0.768410	0.4431
NS	-0.023021	0.049615	-0.463989	0.6431
NUMBERMA	0.004434	0.002871	1.544238	0.1241
NUMBERMA(-1)	-0.001621	0.001715	-0.945527	0.3455
PROF	1.57E-05	5.11E-05	0.307566	0.7587
PROF(-1)	5.11E-05	5.28E-05	0.967887	0.3342
AMOUNTMA	-0.063175	0.028398	-2.224642	0.0272
AMOUNTMA(-1)	0.000909	0.001502	0.604845	0.5459
AVERAGEMMA	0.063652	0.028614	2.224550	0.0272
MASIZE	6.35E-05	0.000427	0.148743	0.8819
MASIZE(-1)	0.000124	0.000282	0.440419	0.6601

#### Effects Specification

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

R-squared	0.188404	Mean dependent var	0.008403
Adjusted R-squared	0.008916	S.D. dependent var	0.054948
S.E. of regression	0.054703	Akaike info criterion	-2.808895
Sum squared resid	0.622422	Schwarz criterion	-2.156192
Log likelihood	405.1341	Hannan-Quinn criter.	-2.546351
F-statistic	1.049674	Durbin-Watson stat	1.307130
Prob(F-statistic)	0.397429		

4. When studying the Covariance Matrix for extreme outliers, we find no extreme observations. This rules out the presence of multicollinearity.

5. Performing a residual diagnostic, the probability and Jarque-Bera value indicate that unlinearity does not exist. Normal distribution is ok.

6. Adjusting heterogeneity with fixed cross-section and period we get our final regression.

Dependent Variable: CEOF  
 Method: Panel Least Squares  
 Date: 05/14/12 Time: 16:38  
 Sample (adjusted): 2001 2011  
 Periods included: 11  
 Cross-sections included: 26  
 Total panel (unbalanced) observations: 255

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.162888	0.937939	4.438338	0.0000
SIZE	0.022222	0.049131	0.452301	0.6515
NS	0.230753	0.092059	2.506575	0.0130
NUMBERMA	0.014893	0.005327	2.795555	0.0057
NUMBERMA(-1)	0.001081	0.003182	0.339755	0.7344
PROF	6.82E-05	9.48E-05	0.719397	0.4727
PROF(-1)	7.97E-05	9.80E-05	0.812700	0.4173
AMOUNTMA	-0.131447	0.052692	-2.494633	0.0134
AMOUNTMA(-1)	0.002905	0.002788	1.042167	0.2985
AVERAGEMMA	0.131116	0.053092	2.469613	0.0143
MASIZE	0.000427	0.000792	0.539063	0.5904
MASIZE(-1)	-0.000504	0.000523	-0.962174	0.3371

#### Effects Specification

Cross-section fixed (dummy variables)

Period fixed (dummy variables)

R-squared	0.733305	Mean dependent var	6.897319
Adjusted R-squared	0.674324	S.D. dependent var	0.177858
S.E. of regression	0.101500	Akaike info criterion	-1.572612
Sum squared resid	2.142872	Schwarz criterion	-0.919909
Log likelihood	247.5081	Hannan-Quinn criter.	-1.310067
F-statistic	12.43298	Durbin-Watson stat	1.427691
Prob(F-statistic)	0.000000		

### Regression 3: Variable CEO compensation

1. Heterogeneity is controlled by using fixed cross sectional and period fixed effects. When looking at the f- and chi-square, the probability indicates heterogeneity in the cross-section, but does not exist in the period effects.

Redundant Fixed Effects Tests

Equation: CEOVRANDOM

Test cross-section and period fixed effects

Effects Test	Statistic	d.f.	Prob.
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Cross-section F	4.972845	(25,205)	0.0000
Cross-section Chi-square	119.453878	25	0.0000
Period F	0.847358	(10,205)	0.5836
Period Chi-square	10.206776	10	0.4225
Cross-Section/Period F	3.749445	(35,205)	0.0000
Cross-Section/Period Chi-square	124.686362	35	0.0000

2. To check whether random effects or fixed effects should be used, we do a Hausman test with random cross-section effects. Our p-value does not reject the null hypothesis, which indicated that we could use both fixed and random effects to adjust for heterogeneity in the cross-sections.

#### Correlated Random Effects - Hausman Test

Equation: CEOVRANDOM

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.607581	11	0.6581

3. Performing a new regression with the squared residuals as dependent variable, we control for heteroskedasticity between the residuals and the independent variables. This results in a p-value that could indicate heteroskedasticity, although none of the variables are within significant range. Hence, we find no heteroskedasticity in this regression.

Dependent Variable: CEOVRESID^2

Method: Panel Least Squares

Date: 05/14/12 Time: 16:43

Sample (adjusted): 2001 2011

Periods included: 11

Cross-sections included: 26

Total panel (unbalanced) observations: 252

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.251333	57.20415	0.074319	0.9408
SIZE	1.897210	3.306329	0.573812	0.5667
NS	-1.448203	6.041419	-0.239712	0.8108
NUMBERMA	0.326147	0.451586	0.722226	0.4709
NUMBERMA(-1)	-0.065198	0.270981	-0.240599	0.8101
PROF	-0.001673	0.008086	-0.206868	0.8363
PROF(-1)	-0.000946	0.008365	-0.113115	0.9100
AMOUNTMA	-6.768044	4.520609	-1.497153	0.1358
AMOUNTMA(-1)	-0.142481	0.241169	-0.590796	0.5553

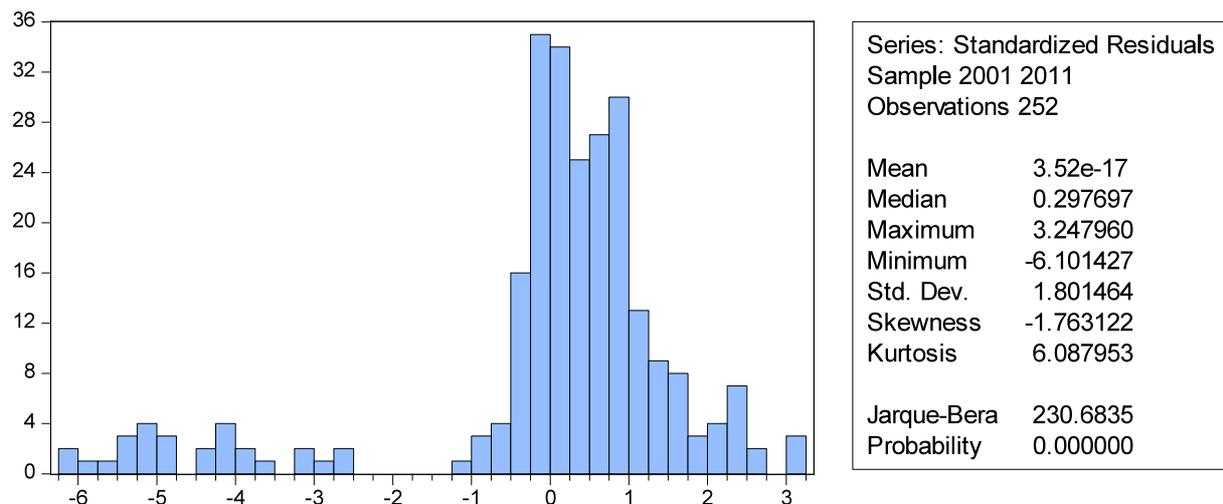
AVERAGEMA	6.538819	4.563753	1.432772	0.1534
MASIZE	0.053812	0.068343	0.787380	0.4319
MASIZE(-1)	-0.023966	0.044082	-0.543680	0.5872

### Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.315336	Mean dependent var	5.173026
Adjusted R-squared	0.200695	S.D. dependent var	9.909858
S.E. of regression	8.859797	Akaike info criterion	7.335785
Sum squared resid	16876.64	Schwarz criterion	7.853994
Log likelihood	-887.3088	Hannan-Quinn criter.	7.544301
F-statistic	2.750631	Durbin-Watson stat	1.911922
Prob(F-statistic)	0.000003		

4. Performing a residual diagnostic, the probability and Jarque-Bera value indicate that non-linearity does not exist. Normal distribution is ok.



5. When studying the Covariance Matrix for extreme outliers, we find no extreme observations. This rules out the presence of multicollinearity.

6. Adjusting heterogeneity with fixed cross-section effects, we get our final regression.

Dependent Variable: CEOV  
Method: Panel Least Squares  
Date: 05/14/12 Time: 16:46  
Sample (adjusted): 2001 2011  
Periods included: 11  
Cross-sections included: 26  
Total panel (unbalanced) observations: 252

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.727090	12.56745	-0.455708	0.6491
SIZE	-0.216640	0.726383	-0.298246	0.7658
NS	1.200286	1.327268	0.904328	0.3668
NUMBERMA	-0.094456	0.099211	-0.952073	0.3421
NUMBERMA(-1)	0.014557	0.059533	0.244519	0.8071
PROF	-1.23E-06	0.001776	-0.000691	0.9994
PROF(-1)	-0.000285	0.001838	-0.155207	0.8768
AMOUNTMA	1.592573	0.993154	1.603552	0.1103
AMOUNTMA(-1)	0.019513	0.052983	0.368288	0.7130
AVERAGEMMA	-1.548087	1.002632	-1.544023	0.1241
MASIZE	-0.011369	0.015015	-0.757183	0.4498
MASIZE(-1)	0.003976	0.009685	0.410513	0.6818

#### Effects Specification

##### Cross-section fixed (dummy variables)

R-squared	0.423599	Mean dependent var	5.473639
Adjusted R-squared	0.327086	S.D. dependent var	2.372812
S.E. of regression	1.946450	Akaike info criterion	4.304752
Sum squared resid	814.5638	Schwarz criterion	4.822961
Log likelihood	-505.3987	Hannan-Quinn criter.	4.513268
F-statistic	4.389010	Durbin-Watson stat	1.714956
Prob(F-statistic)	0.000000		