Coursework Header Sheet

158992-48

the UNIVERSITY of GREENWICH

Course	FINA1037: Dissertation (PG:ACC)	Course School/Level	BU/PG
Coursework	Dissertation	Assessment Weight	100.00%
Tutor	J Mundy	Submission Deadline	30/10/2009

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Title page (SECOND COPY)

Title: Determinants of CEO compensation

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Year of Submission: 2009

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A dissertation submitted in partial fulfilment of the requirements of the degree of Master of Science.

Total word count (excluding acknowledgements, list of tables, references and appendices): 12012

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Acknowledgement

First of all, I am grateful to my parents who make my life a lot easier. Because of them, I did able to concentrate on my dissertation fully. Secondly I would like to thank my first supervisor Ms. Jing Huang who was supportive from the beginning of my dissertation. I am also thankful to my latest supervisor Mr. Julian Spencer-Wood who gave me some useful tips regarding various chapters of this paper. I am hugely grateful to the University of Greenwich for providing me access to some useful sites such as SCIENCEDIRECT, JSTOR etc.

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Jargon

R&D = Research and development

CEO = Chief Executive officer

GAAP = Generally Accepted Accounting Principles

ROE= Return on Equity

MVE = Market value of equity

PS = Preference shares

TA = total asset

Abstract

This paper examines the determinants of CEO compensation. There are many factors that influence on CEO compensation. This paper tried to figure out whether there exists any relation between CEO compensation with R & D expenditures, internationalization, firm size, accounting performance and market performance. 193 firms are selected as sample from forbes.com special report on CEO compensation of forbes 500 firms. All data are collected over the period from 2007 to 2008. Horizon problem and cover up problem is used as the proxy for R & D expenditures. Ratio of sales from foreign affiliates to revenue is used as the proxy for internationalization. Book value of total assets is used as the proxy for firm size. ROE is used as the proxy for accounting performance and Tobin's Q is used as the proxy for market performance.To examine the relation between CEO compensation and other variables, linear regression model was used in this paper. The results have shown that CEO compensation is positively related with horizon factor which is an attribute for R & D expenditures. The results also showed positive relation between CEO compensation and accounting performance as well as between CEO compensation and market performance. The results also showed negative relation between CEO compensation and cover up which is another attribute for R & D expenditures, and between CEO compensation and firm size. All these findings indicated that various factors influence on CEO compensation.

Introduction:

CEO compensation has been the most debatable subject in the United States and in Europe for the last few years. Investors become curious about the corporate governance of companies after a series of scandal regarding corporate governance in the United States and Europe such as Enron, World Com, Parmalat, Maxwell, Polly Peck etc. Several researches were made on how to increase shareholder wealth while keeping managers satisfied. Hence the idea of CEO compensation comes in mind. Plenty of researches have been done on CEO compensation. Cosh and hugh (1997), Conyon (1997), Gregg, Machin and Szymanski (1993), Kato (1997), Randøy and Neilsen (2002) all of them mainly focus on finding out the relation between CEO pay and firm performance. In fact, most of the literatures have been conducted towards figuring out the relation of CEO pay and performance of the firm. CEO compensation is related with firm performance. But there are some factors that influence

CEO compensation. Unfortunately, there is not much literature available on determining the factors that influence CEO compensation.

This paper will point out the determinants of CEO compensation. There are many factors that influence on deciding the amount of CEO compensation. Some factors also influence on at what situation CEO compensation should be given. Research and development expenditure is one of the factors that influence CEO compensation. CEOs are usually tends to increase accounting earnings by reducing investment in research and development sector. It has been seen that in two situations, CEOs are influenced to reduce R & D expenses to boost accounting earnings. One of the two situations is when CEOs are closer to retirement. At this time, CEOs become concern about their compensation. So they try to show more earnings to get more compensation. Another situation is when earnings of the firm decline and these declined earnings can be covered by reducing cost in R & D. So at this position, CEOs try to cut the cost of R & D to show more earnings. By providing compensation depending on the amount of investment done at research and development sector, these two situations can be altered. Increase in compensation depending on investment in R & D sector will lure CEOs to invest in R & D rather than cutting cost in R & D for showing better performance. Therefore it can be seen that R & D expenditures can influence on CEO compensation. This paper will examine the relation between CEO compensation with horizon problem and cover up problem which are the attribute of R & D expenditures.

CEO compensation is also influenced by internationalization. When a firm enter into international market, CEO of that firm has to face a lot of uncertainty. Some of the risks are beyond their control. But CEOs are well aware that they will be responsible for any bad performance of the firm. For this reason, naturally CEOs demand higher risk premium when firms are related with international activities. CEOs of international firm have to deal with political parties, board of members. They have to think about various factors such as religion, new rules and regulations when they try to sale any product to a new market. These works demand a very skilful CEO. As the availability of these skilful CEOs are not enough with the requirement and as these tasks are harder, CEOs demand more compensation when a firm has to deal with international market. So it can be seen that internationalization has an effect on CEO compensation. This paper will examine relation between CEO compensation and sales from foreign affiliates / revenue which is a proxy for internationalization factor.

Firm size also has an effect on CEO compensation. A study by Rosen (1982) has indicated that very little difference in the quality of CEO can make a big difference in larger firms. So, larger firms try to get the best CEO for their firms. Therefore, to get the best CEO for the firm and to keep him interested in the firm, more compensation is given in larger firms. This paper will examine the relation between CEO compensation and firm size.

Accounting performance is also considered as one of the factors that influence CEO compensation. Many scholars have shown in their findings that accounting performance is related with CEO compensation. This paper will examine the relation between CEO compensation and ROE which is the proxy for accounting performance.

CEO compensation is influenced by market performance too. When the firm perform well in the market, CEOs are rewarded with compensation package. Lewellen and Hunstman (1970) have shown that CEO compensation influence strongly in generating profit. So, it seems like market performance is also one of the factors that influence CEO compensation. This paper will examine relation between CEO compensation and Tobin's Q which is the proxy for market performance. To examine all the relations stated above, 193 firms from Forbes 500 firms will be used as sample in this paper.

On the next chapter in literature, this paper will discuss the entire hypotheses that are relevant with the research question and how they derived from theories and others workings. In research design, this paper will discuss why this method is selected and how this method will be used to analyse data. In findings and discussion, this paper will summarise all findings and it will relate the results with literature. In conclusion, this paper will discuss research question, whether it was answered by research and this chapter will also mention possibilities for further research.

Literature review:

Plenty of academic research has been done on executive pay. The modern history of executive pay research began in the early 80's. Most of the researchers tried to find out relation between executive pay and firm performance. Some researchers tried to figure out what things influence on executive compensation. That is to say, how much the firm should pay or at what situation firm should pay more to motivate executives etc. The majority research on executive compensation has been guided by agency theory. Agency theory suggests that as managers do not own all the shares of the company, so

they do not bear all the consequences of their decisions. Therefore it is essential to motivate managers or directors through contract or offer so that they bind their interests with the interests of shareholders. Executive compensation is one of the ways to achieve this goal. Executive compensations are not set by default or there is no existence of any such rules which will say this type of company will give this much money or share as compensation. It is the directors who have to decide about how much the compensation would be and at what situation it might increase. There are many factors that influence executive pay. Some scholars have worked on figuring out these factors.

Few scholars has shown on their workings that research and development (R & D) expenditures is related with executive compensation. Basically R & D expenditures are treated as expense. According to Bange and Bondt (1998), CEO (Chief Executive Officer) can reduce R & D expense with the intention to increase accounting earnings. This might help the firm benefited in short term but it will deprive the firm from getting long term benefit of research and development. This problem can be solved by designing the compensation scheme in such a way which will increase executive pay depends on how much they spend on R & D. But this might not clear the problem fully. As the board of Directors usually do not have the knowledge about the CEO's Skills and knowledge in investing on R & D, if board of Directors set compensation pack as it might be increase depending on the level of investment in R & D, it might lure CEO to overinvest on R & D. This will not bring any long term benefit for the firm; neither will it bring short term benefit. According to Dechow et al. (1994), this situation can be handled by controlling CEO's expenditures which are mainly intent for firms long term benefit, by adding back the expense to the GAAP (Generally Accepted Accounting Principles) earnings.

Baker et al. (1994) indicated that it might happen that in any multitask environment, managers will focus on only those tasks which's objectives are easy to measure and they might tend to neglect those tasks which's objectives are hard to measure. It is clear that short term benefit of accounting earning is easy to measure. On the other hand, the long term benefit of R & D expenditures is hard to measure. So this might provoke the managers to for accounting earnings which will bring short term benefit to the firm instead of going for R & D expenditures which is supposed to bring long term benefit to the firm. To handle this problem, a firm can implement subjective evaluations which will consider R & D activities. As Bushman et al (1996) mentioned that, while assessing CEO's performance, firms may analyse CEO's workings or deeds which are failed to reflect fully in accounting performance measure as well as in stock market – based performance measures. On the other hand, Aboody and Kasznik (2000) said that board of directors could award CEOs with more or less stock options depending on the subjective assessment of CEO's performance. Not only financial

measures used as decider in plans to inspire CEOs. According to Holthausen et al (1995), there are some nonfinancial measures which are used in CEO compensation schemes. These are innovation, patents, new product development etc. These factors are closely related with firms R & D activities. Thus, R & D expenditures are related with CEO compensation schemes.

It has become an empirical issue whether R & D expenditures have any effect on CEO compensation. Lev and Sougiannis (1996) have shown positive relation between R & D expenditures and CEO compensation in term of stock returns. Baber et al (1996) found that R & D expenditures lead to adjustment of stock return and accounting earnings in CEO compensation schemes. In contrast with this, Brown (1998) has shown that it is possible for firms to manipulate accounting earnings with the intention to meet benchmark earnings as well as to stay away from any bad effect in stock markets. Aboody and Lev (2000) stated that the possibility of getting the benefit of R & D expenditures in stock price is less as R & D expenditures are connected with high information asymmetry between the shareholders and the managers. According to Feltham and Xie (1994), stock price might not be enough to be an indicator for managers which will say where to focus on as it might not be a good measure for managerial performance. DeAngelo (1988 cited by Cheng 2001) said that, increase in stock based CEO compensation might enforce more risk on CEOs which might lead to a higher risk premium because there are lots of other factors that are affecting stock price which are not subject to the influence of executives'.

Usually the benefit of R & D expenditures to the firm depends on CEO's motivation. The stronger the CEO's motivation to increase current accounting earnings, the higher the benefit of R & D to the firm would be. There are two factors which strongly motivated CEOs to work for short term accounting earnings. These are horizon and cover up problems. By horizon problem, it means career concern of CEOs. When CEOs are closer to their retirement, they tend to boost accounting earnings so that they can get more compensation and pension scheme at the time when they will retire. To achieve this goal, CEOs tend to reduce investment in R & D expenditures which shows more profit for the firms. Gibbons and Murphy (1992) said that the worries of CEOs for the influence of current performance on future compensation schemes are CEO's career concern. It can influence CEOs to work for shareholders. Fama (1980) agreed with this statement by stating that managerial labour market relates salaries to performance to control managers' activity. When CEOs are not concern about their career, the horizon problem occurs. Brickley et al (1999) indicated that CEO's career concern get weaker when they are closer to their retirement. Gibbons and Murphy (1992) indicated that the sensitivity of pay to performance become higher when CEOs are closer to retirement. Consistent with this, Lewellen et al (1987 cited by Cheng 2001) figured out that when CEOs are closer to retirement it

influences in increase of stock based incentives. If CEO compensation scheme is design in such a way that CEO compensation will increase depending on the profitable R & D expenditures, it will surely motivate CEO to invest in research and development. Above discussion rises the following hypothesis:

> Hypothesis 1: Increasing R & D expenditures leads to an increase in CEO compensation scheme when CEOs are closer to retirement.

Another factor that influences CEOs to boost accounting earnings by reducing R & D expenditures is cover-up problem. This problem occurs when CEO need to cover up current year's bad performance to save him from being sacked. Murphy and Zimmerman (1993) have shown that bad performance leads to CEO turnover. Bushee (1998) mentioned that CEOs are tending to cover up accounting earnings to fulfil short term earnings target. DeFond and Jiambalvo (1994 cited by Cheng 2001) indicated that CEO might try to cover up earnings to avoid contracting costs. Dechow and Skinner (2000) said CEO may want to increase earning so that they can avoid decline in stock market. CEO's intention to reduce R & D expenditures to increase current accounting earnings become strong when earnings decrease and that decrease can be turned to a profit by cutting the R & D costs. This situation can be reversed by giving rewards to CEO for profitable R & D expenditures when cover-up problem occurs. Above discussion rises the following hypothesis:

> Hypothesis 2: Increasing R & D expenditures leads to an increase in CEO compensation when the firms face an earnings decline that can be reversed by cutting R & D expenditures.

Previous studies have shown that internationalization has influence on CEO compensation scheme. It is a proven fact that International CEO needs more skills than Domestic CEO. Works of International CEOs are related with more risk than works of Domestic CEOs. CEOs are well known about the fact that they will be responsible for the poor performance of the firm. So they are supposed to penalize if the firm perform poorly. As International CEO's works involves higher risk, they need higher risk premium. A number of studies also supported this fact. According to Reeb, Kwok and Bake (1998 cited by Oxelheim and Randøy 2004), higher level of firms' performance are rewarded for the higher risk in international business. Higher risks also can affect CEO compensation package. CEOs are supposed to claim a premium for this higher risk. There involves some other risks with internationalization which are not controllable by CEOs. But they are supposed to get the blame if firm perform badly for these risks. CEOs control powers also get reduced by independent Anglo-American board member or if the company is listed on an Anglo – American stock market. CEOs are

likely to demand compensation for involving in this kind of risk. Firms with lower level of CEO compensation are likely to see increase in their level of compensation when they will become international.

As job of international CEO is harder and require more skills, the supply of CEO won't be much in compare with the requirement for the firms. That will also cause increase in compensation scheme. Human Capital theory indicated that if the requirement limits the supply of CEO then it would increase in CEO compensation scheme (Agarwal, 1981 cited by Oxelheim and Randøy 2004). This also indicated that internationalization has influence on CEOs. Firms which have higher foreign revenue, lead their CEO to more uncertainty. Some of them are beyond their control. Oxelheim and Wihlborg (1997 cited by Oxelheim and Randøy 2004) stated that, as firms lead their CEOs towards more uncertainty, CEOs are expected to ask for high risk premium. Managerial discretion theory suggested that internationalization makes CEOs job more harder and create an environment with complex tasks (Frikelstein and Boyd, 1998). Managerial discretion theory emphasizes on the demand such as international CEOs might get higher pay from their firms for the services they provide. But on the other hand, Human capital theory focuses on the influence of internationalization on the supply of skilled CEOs. It is a fact that firm will be benefited more by having an internationally oriented CEO because he will be able to deal with success with both domestic and foreign customers as well as suppliers. He also will be able to deal with domestic and foreign board members, investors, regulators. Organizational power theory suggested that competitive market might increase the number of skilled CEO and can create labour market for CEOs. To get the market more competitive, market need to enter in international stage. Howe and Madura (1990 cited by Oxelheim and Randøy 2004) pointed out international cross listing as a known way of escape from a domestic market and to enter in international market. The firm will be examined by new international investors when they are cross listed. It will face new rules and regulations. It will also need to adjust with new standard. Firm also has to disclose their annual report regarding that market required standard. CEOs have to deal with these new challenges when their firm is exposed to international market. Stulz (1999 cited by Oxelheim and Randøy 2004) said that Anglo – American stock market listing is a big step for firms that have not enjoyed international cost of capital, for which firm reward their CEOs with higher compensation scheme.

CEO compensation can be influenced by product and service market too which are derived from export and foreign sales. Firm need more qualified CEOs when they want to spread the sales of their products in other countries. As the culture varies from country to country, it affects people's lifestyle as well. Thus any particular product might not have the same demand in all countries. So, CEOs

should have possessed knowledge about these countries where they are planning to sale their products. There are others factors too such as political risk, security, religion etc. These demands might significantly reduce the quantity of skilled CEOs that is required for the firms. Oxelheim and Wihlborg (1997 cited by Oxelheim and Randøy 2004) mentioned that the supply of prospective CEO will be more limited by requirement of skills like managing political risks, greater macroeconomic etc.

Firms are likely to pay more to a highly qualified and skilled CEO simply because of the higher requirement of the job. Sanders and Carpenter (1998) stated that CEOs of firms which are involved internationally are supposed to get higher pay than CEOs of firms which are involved domestically. Firms which are highly concentrated on foreign sales and export, are supposed to include risk premium in the CEO compensation scheme. These firms should include risk premium for the fact that there involves some factors which influence the firm's performance but CEOs don't have any influence in these outcomes. Oxelheim and Wihlborg (2003) said that CEOs deserve to get risk premium as political environment as well as economic environment of the firm can be changed by outer influence. Therefore firms with higher export and foreign sales are likely to pay higher compensation. Above discussion rises the following hypothesis.

> Hypothesis 3: there is a positive relation between a firm's level of export and foreign sales and CEO compensation.

Various academic researchers showed that CEO compensation is positively related with firm size. Gregg, Machin and Szymanski (1993 cited by Makinen 2005) examined on UK listed 288 large firms over the period 1983-1991. They found the evidence that CEO pay is related strongly with firm size. Their workings showed that 50% increase in a firms revenue increases CEO compensation 10%. Baker, Jensen and Murphy (1988) studied on the relation between CEO compensation scheme and revenue and their outcome showed a positive relation between CEO compensation and firm size. Their study stated that a firm which is 10 percent larger will pay 3 percent more to its CEOs. Almost same result has found in Kostiuk's (1989) work where he examined 73 large firm of U.S over the time 1968 to 1981. Same result was found by Murphy (1985 cited by Oetomo and Swan 2002) as well despite of the inclusion of stock option and deferred compensation on his research. Zhou (1999) examined on 755 firms which are all Canadian firms and his works also found that CEO pay is positively correlated with firm size.

There are some other scholars who have examined and got the same result while they were experimenting with different firms. Zhou and Swan (2002), Kato (1997) found similar result when they experimented on Japanese firms. Cosh and Huges (1997), Conyon (1997) got the same result from UK firms. Same result also found in Australian firms by Izan et al (1998 cited by Oetomo and Swan 2002). Though lower elasticity was found in the study of Bruenello et al (1998) who conducted their experiment on Italian firms. Although all these studies did manage to set up a fact that CEO compensation is positively related with the firm size, but there is no such explanation provided on why CEO compensation and firm size is positively correlated. Jensen and Murphy (1990) guessed pay performance sensitivity which was not significant and pointed out that the relation is mainly between CEO compensation and firm size, not in between CEO compensation and ability. The most accepted argument on reason behind larger firm's tendency to pay more CEO compensation is given by Rosen (1982). On his works he have shown that very little difference in the talent of CEOs can make a huge impact on the whole firm if it a large firm. Therefore, according to Rosen's hypothesis, CEOs of larger firms prompt the positive relation between firm size and CEO pay by the higher talent they possess. On another word it can be said that CEOs of large firm's marginal products are proportionately higher which the reason behind their higher compensation schemes is.

Baker and Hall (1998) also pointed out that there is smaller pay performance sensitivity on CEO compensation in large firms. Their works also showed that insignificant amount of firm's stock is owned by CEOs of larger firms which are usually more than CEOs of small firms. This is the reason why pay performance sensitivity is less significant in small firms but more significant in larger firms. Baker and Hall also presumed that motivation strength of CEO's can be figured out by the number of stock owned by CEOs. The reason behind their prediction was the minor efficiency of CEO effort rises in accordance with firm size. According to Baker and Hall's (2004) study, they characterize CEO compensation as CEO pay plus the change in CEO wealth which is the result of change in the value of stock. They also found that the larger the firm become, slightly it causes falls in CEO motivation. Above discussion lead to the following hypothesis:

Hypothesis 4: CEO compensation scheme is positively related to firm size.

A lot or researchers have worked on figuring out a relation between CEO compensation and firms' performance. Kato and Kubo (2005) examined the relation between CEO compensation and firm performance on Japanese firms over the time from 1986 to 1995. Their study found that there is an influence of firm performance to CEO compensation scheme. They also stated that the influence is specially on accounting measures. Their works have shown stock market performance as less

important factor to determine CEO's compensation package. Randøy and Nielsen (2002) examined the relation between CEO compensation and firm performance on 120 Norwegian firms as well as on 104 Swedish firms. Lewellen and Hunstman (1970) examined whether any positive relation between CEO compensation and firm performance on 50 us firms over the period from 1942 to 1963. They have found that generating profit is strongly depends on CEO compensation. It was also found in their workings that profit of the firm and values of stock market influence more in determining CEO compensation package in comparison with sales of the firm. 1295 firms CEO compensation data were used as sample in the workings of Jensen and Murphy (1990). They tried to figure out how any change made in CEO compensation scheme make changes in shareholders wealth. On their workings, they have used 8 different components to measure CEO compensation. While they were working on figuring out CEO pay for performance, they found that CEOs are paid more than their performance. There works were widely viewed both in press and in academic journals because their works created a concern about the U.S. firms whether they are managing firm well.

A survey was conducted by Rosen (1990) on few empirical studies on relation between CEO pay and firm performance. He found out from these studies that the influence of stock returns on CEO compensation in 0.1 – 0.15 range. He also studied on various academic works on the relation of CEO pay and firm size in various time periods on the U.S firms as well as on the UK firms. After studied all these literatures, he was amazed when he found out that for all firms, elasticity of CEO pay and firm size are not significantly different from beta of 0.3. Gregg, Machin and Szymanski (1993 cited by Makinen 2005) conducted their thesis on 288 large listed firms of UK over the period from 1983 to 1991. On their workings, they mainly focused on the relation between CEO pay and firm performance. They have found that, in terms of share returns over the whole fiscal year, the influence of CEO pay on firm performance is very weak. But when they examined the relation between CEO pay and firm performance again after slitting the data into 2 time period which were 1983 – 1988 and 1989 – 1991, they found that CEO pay is positively related to firm performance for the first period of time. Finkelstein and Boyd (1998) examined on 1000 Fortune firms and found out that CEO compensation is positively related with ROE (Return On Equity), firm size and managerial discretion such as R & D intensity, market growth etc. Above discussion leads to the following 2 hypothesis:

Hypothesis 5: CEO compensation is positively related to accounting performance

Hypothesis 6: CEO compensation is positively related to market performance.

Therefore, to examine the determinants of CEO compensation, all these following hypothesis are proposed based on theory and others workings:

Hypothesis 1: Increasing R & D expenditures leads to an increase in CEO compensation scheme when CEOs are closer to retirement.

Hypothesis 2: Increasing R & D expenditures leads to an increase in CEO compensation when the firms face an earnings decline that can be reversed by cutting R & D expenditures.

Hypothesis 3: there is a positive relation between a firm's level of export and foreign sales and CEO compensation.

Hypothesis 4: CEO compensation scheme is positively related to firm size.

Hypothesis 5: CEO compensation is positively related to accounting performance

Hypothesis 6: CEO compensation is positively related to market performance.

Research Design:

Previous study by Cheng (2001) examined the relation between R & D expenditures and CEO compensation. He used 157 firms as sample from Forbes 500 firms in R & D intensive industries during the year 1984 – 1991. His main focus was on the following 2 situation: i) CEOs near retirement which he described as horizon problem and ii) firms with decline in earnings which is possible to recover by reducing expense in R & D expenditures which he described as the cover – up problem. As Murphy and Zimmerman (1993) had shown that there is a possibility of occurring horizon problem at the time when CEOs are closer to their retirement, Cheng (2001) used CEO age as a proxy for horizon problem because it is closely related to CEO retirement. He calculated horizon = 1 if CEO age is 63 or older. The reason behind that is CEOs are usually retired at the age range from 64 to 66 which were pointed out by Murphy (1999). So CEOs are likely to be motivated on reducing R & D expenditures to boost accounting earnings prior to age 63.

In this paper I have followed Cheng's (2001) work in examining the relation between R & D expenditures and CEO compensation. I have chosen CEO age as the proxy for horizon problem. As mentioned earlier, CEOs are intent to work for boosting accounting earnings

when they are closer to retirement and as the average age for retire is 66 , I have calculated horizon =1 if CEO age is 63 or older.

To examine the hypothesis whether R & D expenditure leads to an increase in CEO compensation when the firm faces an earnings decline that can be reserved by cutting R & D expenditures, Cheng (2001) estimated cover up equal to 1 when two conditions happens at the same time. These two conditions are i) if this year pre tax income plus this year R & D expenses is less than previous year pre tax income plus previous year R & D expenses. ii) if this year pre tax income plus this year R & D expenses is greater than previous year pre tax income.

In this paper I have calculated cover up as equals to 1 when two conditions happen at the same time which was already mentioned in the study conducted by Cheng (2001). The reason behind that is CEOs are tend to cut R & D expenses to increase accounting earnings for the year if the decline for the year is smaller and it can be recover by cutting the cost of R & D.

The method I have used to examine relation between internationalization and CEO compensation was used in the working paper of Oxelheim and Randøy (2004). They examined their hypothesis on 194 Norwegian and 304 Swedish firms which were listed on their countries stock exchange market. They used CEO compensation as dependant variable which includes salary, bonuses and stock option grants. On their working, they used the ratio of foreign sales to total sales as an indicator of firm's international activities. In accordance with their workings, I have used the ratio of export and foreign sales to the total revenue as an attribute for internationalization as well. Part of the revenue which is generated by export and sales from foreign affiliates are considered as foreign revenue. Ratio of foreign sales to total sales is calculated by dividing foreign revenue with total sales.

Oetomo and Swan (2002) examined relation between CEO compensation and firm size. They used book value of total assets as a proxy for firm size on their workings. Rosser and Canil (2007) used book value of total assets as firm size when they tried to figure out relation between CEO compensation and firm size. They categorised firms as small firms which' book value of asset are less or equal to 500 million dollar. Firms that do not qualify for this category are categorised as large firms. In accordance with their works, I have used book

value of total asset as a proxy for firm size to examine relation between firm size and CEO compensation.

Shim, Lee and Joo (2009) used return on equity as a proxy for accounting performance indicator and they used Tobin's Q as a performance measurement for market factor. I have followed their study while examining whether CEO compensation is positively related to accounting performance and whether CEO compensation is positively related to market performance. Here market value equals to Tobin's Q = [MVE + DEBT + PS] / TA where MVE is the market value of shareholders equity, DEBT is the value of the firm's short – term liabilities net its short term assets plus the book value of the firms long term debt, PS is the liquidating value of the firm's outstanding preferred stock and TA is the book value of the total assets of the firm. ROE is calculated by dividing Net income after tax with Total equity. Net income is selected after tax and preferred stock dividends but before common stock dividends. Preferred shares are excluded from total equity.

193 firms have been randomly selected as sample from Forbes.com special report on CEO compensation of Forbes 500 firms. The reason behind choosing firms from Forbes 500 firms is, in U.S economy, Forbes 500 firms play a vital role which was examined by Sloan (1993 cited by Cheng 2001). Moreover, detailed data about CEO's compensation is available for U.S companies as publicly listed firms' one of the requisite is to disclose information about top 5 CEO's compensation.

Compensation is selected as dependant variable. Compensation is the total of cash pay and share own by CEO. Data of cash pay and share owned are collected from Forbes.com.

A set of proxies for R & D intensity, market factor, accounting factor, internationalization factor and firm size has been selected as independent variables. For R & D intensity, horizon problem and cover up problem is used. Horizon problem equals 1 if CEO age is 63 or older. CEO age is collected from forbes.com. Cover up problem equals 1 if two conditions happen at the same time i)this year pre tax income + this year R & D expense< last year pre tax income + last year R & D expense. ii) this year pre tax income + this year R & D expense > last year pre tax income. Information of company's pre tax income and R & D expense is collected from advfn.com where they store data about companies' based on their annual

report. Some data are collected manually from 2008's annual report of companies'. For market factor, Tobin's Q is used as a proxy where Tobin's Q = [MVE + DEBT + PS] / TA. DEBT is calculated by deducting current assets from the total of long term and short term debt. All these data are collected from advfn.com. ROE is used as the proxy for accounting factor. Ratio of foreign sales to revenue is used as the proxy for internationalization and book value of total assets is used as the proxy for firm size.

Descriptive statistics for each variable has been calculated for the purpose of data analysis. After that, to point out the inter correlation among various measures, Pearson's Correlation has been used. After that, to verify the significance of the relation between CEO compensation and various measures, linear regression has been analysed. Regression models which have used to identify relations between CEO compensation and other variables are mentioned below.

Following regression model is used for the regression of CEO compensation on horizon problem:

CEO compensation = a + b (horizon problem) + e

Following regression model is used for the regression of CEO compensation on cover up:

CEO compensation = a + b (cover up) + e

Following regression model is used for the regression of CEO compensation on internationalization:

CEO compensation = a + b (sales from foreign affiliates / revenue) + e

Following regression model is used for the regression of CEO compensation on Firm size:

CEO compensation = a + b { firm size (total assets) } + e

Following regression model is used for the regression of CEO compensation on accounting factor:

CEO compensation = a + b { accounting factor (ROE) } + e

Following regression model is used for the regression of CEO compensation on market factor:

CEO compensation = a + b { market factor (Tobin's Q) } + e

Findings and discussion:

Table 1 presents descriptive statistics of all variables which are Compensation, horizon problem, coverup, firm size (total assets), sales from foreign affiliates / revenue, accounting factor (ROE) and market factor (Tobin's Q). Among these, compensation is dependant variable and rest of these are independent variables. Data for all these variables are collected from 193 Forbes 500 firms for the period 2007 and 2008. Compensation which is dependant variable, are calculated as the sum of total cash pay and share owned by CEO. Forbes.com is the source of data on total cash pay and share owned by CEO. Horizon problem is one of the problems which are related to R & D expenditures. Horizon problem equals to 1 when CEOs are 63 years old or over 63 years old. Horizon problem equals 0 when CEOs are 62 years old or younger. Data on CEO age are collected from forbes.com. Coverup problem is another problem which is associated with R & D expenditures. Coverup equals to 1 when 2 conditions happens at the same time i) when year 2008 pre tax income plus year 2008 R & D expenditures are less than year 2007 pre tax income plus year 2007 R & D expenditures. And ii) when year 2008 pre tax income plus year 2008 R & D expenditures are greater than year 2007 pre tax income. Coverup equals to 0 when both of these conditions don't apply at the same time. Data of year 2008 pre tax income and R & D expenses and year 2007 pre tax income and R & D expenses are collected from advfn.com. Some company's data are collected manually from the 2008 annual report of these companies. For internationalization factor ratios of export and foreign sales to total revenue is used as a proxy. Data of export and foreign sales and revenue are collected from advfn.com. Book value of total assets is used as the proxy of firm size. Book value of total asset is the total of firms' fixed assets and current assets. Data of fixed assets of the firms and current assets of the firms are collected from advfn.com. For accounting factor, ROE is used as a proxy. Net income after tax and total equity is required to calculate ROE. Data of net income after tax is collected from advfn.com. Preferred stock dividend is also deducted from net income. Data on total equity is collected

from advfn.com as well. Preferred shares are also deducted from total equity. After collecting all required data, ROE is calculated by dividing net income after tax with total equity. Tobin's Q is used as the proxy for market factor. Tobin's Q is calculated as [Market Value of Equity + DEBT + Preference Shares] / Total Assets. Data of market value of equity is collected from advfn.com. Debt is calculated by adding up short term liabilities of firms' with long term liabilities of firms' and then deducting current assets of firms' from the total. Data of firms' short term liabilities and long term liabilities are collected from advfn.com. Preference share is the liquidating value of firms' outstanding preferred stock and total assets is the book value of the total assets of the firm which is calculated by adding up current assets of the firm with fixed assets of the firm. Data of preference share, current assets and fixed assets are also collected from advfn.com.

Total of 193 firms are selected from different sectors. 3.63% firms are selected fromAerospace & Defence sector, 3.11% firms are selected from banking sector and 1.04% firms are collected from Business Service & Supplies sector. From Capital Goods sector, 9 firms are selected which is 4.66% of total selected firms. From Chemicals sector, 1.55% firms are selected. From conglomerates sector, 3.11% firms are selected. 2.07% firms are selected from construction sector. 3.11% firms are selected from consumer durables. 9.84% firms are selected from diversified financial sector. From Drugs & Biotechnology sector, 5.18% firms are selected. 6 firms are selected from food, drink and tobacco sector which is 3.11% of total selected firms. 1.04% firms are selected from food markets sector. 5.7% firms are selected from Health Care Equipment & services sector. From Hotels, Restaurants and Leisure sector, 3.11% firms are selected. From household and personal products sector, 3.11% firms are selected as well. 6.22% firms are selected from Insurance sector. 3.63% firms are selected from materials sector. From media sector, 3.11% firms are selected. 8.81% firms are selected from Oil and Gas Operations sector. 4.66% firms are selected from retailing sector. 5 firms are selected from semiconductors sector which is 2.59% of total selected firms. From software and service sector, 2.07 firms are selected. From technology, hardware and equipment sector, 10 firms are selected which is 5.18% of all selected firms. 2.07% firms are selected from telecommunications services sector. 3.63% firms are selected from transportation sector and 4.66% firms are selected from utilities sector.

[Table 1 about here]

In table 1, it can be seen that the minimum CEO compensation is 9.28 million US dollar and maximum CEO compensation is 23,926.62 million US dollar. Average of CEO compensation is 285.95 million US dollar. Table 1 has also shown that 16% of the firms have horizon problem that is to say, 16% firms have CEOs who are 63 years old or older than 63. Table 1 indicating that 3% firms have coverup problems that is to say, these firms earning decline can be cover up by reducing expense in research and development. These figures indicating that R & D expenditures have significant influence in these selected firms. And these firms are familiar with horizon and coverup problem. Although very few firms have experienced cover up problem in my selected 193 firms. But previous research by Cheng (2001) found that 18% of his selected 157 firms had cover up problem. In his selection method of firms, only those firms were picked which were in R & D intensive industries. Thus, most of these firms have investment in R & D expenses. But in my selected firms, very few firms have shown investment in R & D expenditures in their audited financial reports. It is seems like this might be the reason behind very few firms experience with coverup problem in my selected 193 firms.

Table 1 also stating that minimum firm size is 1404.6 million US dollar where maximum firm size is 2.175 trillion US dollar. In average, firm size is 8347.7 million US dollar. In table 1, it can also be seen that in average, 24% revenues are generated from export and foreign sales. This indicates that, internationalization has a significant influence on CEO compensation. Descriptive statistics of these firms also indicated that, in average, ROE of these firms is 3% and average Tobin's Q for these firms is 57%.

[Table 2 about here]

Table 2 presents correlation matrix between compensation, horizon problem, coverup, firm size (total assets), sales from foreign affiliates / revenue, accounting factor (ROE) and market factor (Tobin's Q). Table 2 points out that CEO compensation is positively related with horizon problem (0.242), sales from foreign affiliates / revenue (0.056), accounting factor (ROE) (0.020) and market factor (Tobin's Q) (0.035). But CEO compensation is negatively related with coverup (- 0.024) and firm size (total assets) (- 0.15). Horizon problem is positively related to accounting factor (ROE) (0.047) and market factor (

Tobin's Q) (0.142) but it is negatively related with coverup (- 0.077) , firm size (total assets) (- 0.07) and sales from foreign affiliates / revenue (- 0.042). Coverup is positively related with sales from foreign affiliates / revenue (0.196) but negatively related with firm size (total assets) (- 0.038), accounting factor (ROE) (- 0.031) and market factor (Tobin's Q) (- 0.041). Firm size (total assets) is negatively related with sales from foreign affiliates / revenue (- 0.137), accounting factor (ROE) (- 0.024) and market factor (Tobin's Q) (- 0.215). Sales from foreign affiliates / revenue ratio is negatively related with accounting factor (ROE) (- 0.043) and market factor (Tobin's Q) (- 0.006). Accounting factor (ROE) is negatively related with market factor (Tobin's Q) (- 0.038).

Table 3 shows regression of CEO compensation on horizon problem. The result which is shown in the table 3 indicates that Constant is 104.383 and the regression coefficient of the independent variable is 1168.128 which is positive. This result also stated that every one percent increase in horizon problem will increase CEO compensation by 24%. T –test value of the regression coefficient of the constant is 0.782 which is significant and the t – test value of the regression coefficient of the independent variable which is horizon problem in this case, is 3.341.

[Table 3 about here]

This result is consistent with Cheng's (2001) findings. He examined influence of horizon problem on CEO cash compensation and on CEO total compensation. His empirical analysis also showed that horizon problem is negatively related with CEO cash compensation. According to his findings, for 1 percent increase in horizon problem, CEO cash compensation will decrease 2.32 percent. But his result showed positive relation between horizon problem and CEO total compensation. According to his findings, for 1 percent increase in horizon problem, CEO total compensation will increase 129.13 percent.

Result in table 3 actually link what was expected in literature review. As mentioned earlier, CEOs have the tendency to show more accounting earnings by cutting the cost in research and development when they are closer to retirement. They become concern about their pension scheme at that time and start working on how to get more compensation when they will retire. A good performance in a fiscal year might help them getting their desire compensation. To achieve this goal, they think of cutting cost in R & D expenses as it will

increase the profit of the firm. Thus, CEOs are intent to reduce invest in R & D expenses so that they can show good accounting earnings. As shown by Gibbons and Murphy (1992) that the sensitivity of pay for performance keep increasing when CEOs are closer to their retirement. Thought it will be profitable for the company for short period of time but in the long run company will not be profited by reducing investment in R & D expenditures. To prevent this, Board of directors are supposed to set the compensation scheme in such way that it will tempt CEOs to invest in R & D expenditures rather than cutting cost of R & D expenditures to show more profit. As it was proven by the result in table 3 which shows that 1% increase in horizon problem will lead CEO compensation to increase by 24%. In another word it can be said that when CEOs are 63 years old or over 63 years old that is to say, near their retirement, it is likely that CEO compensation will increase. And by this, the question set by hypothesis: 1 which was whether increasing R & D expenditures leads to an increase in CEO compensation scheme when CEOs are closer to retirement is proven right.

[Table 4 about here]

Table 4 presents regression of CEO compensation on coverup problem. The result which is shown in the table 4 indicates that Constant is 293.329 and the regression coefficient of the independent variable which is cover up in this case, is – 237.119 which is negative. This result also stated that every one percent increase in cover up problem will decrease CEO compensation by 2.4%. T –test value of the regression coefficient of the constant is 2.285 which is significant and the t – test value of the regression coefficient of the independent variable which is cover up problem in this case, is – 0.326.

The results presented in table 4 were not expected. As in literature it was shown by other scholars that when company faces a decline in accounting earnings and if that lose is possible to cover up by reducing the cost of R & D expenditures, CEOs then tempt to cut the cost of R & D expenditures so that they can increase accounting earnings. They even try to boost accounting earnings by reducing R & D expenses when they want to achieve their target. In this situation, Board of directors can reverse the scenario by giving more compensation if CEOs invest more in R & D expenses. Thus, this will influence CEOs to invest more in R & D expenditures. But the result in table 4 shows totally opposite of what have discussed in literature. Cheng (2001) tried to find relation of horizon and cover up problem with CEO cash and total compensation as well as the number and the value of stock option granted. His empirical studies have shown that cover up problem is positively related with number and

stock option granted. His studies also pointed out that cover up problem is negatively correlated with stock returns. Cover up problem is also negatively correlated with ROE (return on equity) but it is positively correlated with R & D expenses. In his regression analysis of CEO compensation on accounting earnings, R & D expenditures and stock returns, it has been shown that coefficient of horizon X RD is positively related which proved his horizon hypothesis right. His cover up hypotheses was the coefficient of cover up X RD is positive. And his regression analysis proved that right as well. His result has shown that without the presence of horizon problem and cover up problem, the huge impact of R & D expenditures on CEO compensation is not significant. His result also showed that when cover up problem is present, any increase in R & D expenses treated as an indicator of good quality of the R & D projects. For this reason, CEOs are rewarded by market by higher stock returns. They are also rewarded by the board of directed by grant more stock options for them. Adding a relation between R & D expenditures and the number of CEO stock options, the board of directors mainly try to influence CEOs to invest in profitable R & D sectors. Therefore, cover up problem influence in increasing CEO compensation. But according the result in table 4 in this paper, this has been proven wrong. The question which was raised by hypothesis 2: increasing R & D expenditures leads to an increase in CEO compensation when the firms face an earnings decline that can be reversed by cutting R & D expenditures has been proven wrong as well. Maybe the selection of firms played a vital role in getting an unexpected result. As only 3% firms have faced the cover up problem and most of the firms do not have any investment in R & D expenditures, the outcome did not actually reflected the possible result. If more firms were faced the cover up problem, the hypothesis might have been proven right. More further research in needed to prove that hypothesis 2 is right. It might be necessary that more selected firms should be faced with cover up problem.

[Table 5 about here]

Table 5 presents regression of CEO compensation on internationalization. The result which is shown in the table 5 indicates that Constant is 198.711 and the regression coefficient of the independent variable which is sales from foreign affiliates / revenue in this case, is 359.904 which is positive. This result also stated that every one percent increase in sales from foreign affiliates / revenue will increase CEO compensation by 5.6%. T –test value of the regression coefficient of the constant is 0.242 which is significant and the t – test value of the regression coefficient of the independent variable which is sales from foreign affiliates / revenue in this case, is 0.441.

The result that has been shown in table 5 was expected. It was according to what discussed in literature review. As to be able to successfully investment in foreign sector needed more skills for a CEO. As foreign investment is full with unknown risk and sometimes risks are uncontrollable too. This is not certain that a CEO who is successful in domestic firm will surely be successful in international firm as well. There are plenty of other factors that CEO needs to think of. An international CEO needs to negotiate with political parties; they have to think of religion factor when selling a product in foreign market. They have to think of people's lifestyle. They also need to think of how foreign labour market react and works. So, an international CEO has to be very skilful in all these departments. As it is natural that more the more skill is needed in person, less gets the number of available people. In the same way, the numbers of high profile CEOs are less than the required CEOs. So these CEOs are supposed to ask for more compensation for the difficulty level of their tasks and their high skills. As it was mentioned by Agarwal (1981 cited by Oxelheim and Randøy 2004) that according to human capital theory, when the requirement reduce the amount of skilled CEOs, it will influence in increase of compensation scheme. Also their work is more risky. For this reason they need higher premium. As it was stated by Oxelheim and Wihlborg (1997 cited by Oxelheim and Randøy 2004) that when firms enter into international level, it forces CEOs of that newly entered international firm to face more uncertainty and for this reason, CEOs can ask for high risk premium. CEOs are responsible for the performance of the firm. There are some factors that can influence the performance of the firm highly but these factors are not controllable by CEOs. Still CEOs have to take the blame if firm perform badly for these uncontrollable factors. Thus, international CEOs need more risk premium. As stated by Reeb, Kwok and Bake (1998 cited by Oxelheim and Randøy 2004) that CEO compensation can be affected by higher risks as higher risks taken in international level can be rewarded with higher level of the performance of the firm. The powers of CEOs also get reduced when the firm include itself in Anglo – American stock exchange market. Because, the existing power system in Anglo – American firms restrict the power of CEOs.

The result shown in table 5 also similar with the outcome of the workings of Oxelheim and Randøy (2004) who worked on finding out the relation between internationalization and CEO compensation. Their empirical evidence has shown that CEO compensation is positively related with internationalization. According to their study, every one percent increase in internationalization will increase CEO compensation by 6.95 percent. Their study also found out a relation between CEO compensation and foreign exchange listing.

According to their study, there is a positive relation between CEO compensation and Anglo – American board membership as well. They also pointed out that CEO compensation is positively related with export and foreign sales intensity. After all these discussion it is clear that the result shown in table 5 is similar to the related literature as well as others findings. Therefore, the question which was raised by hypothesis 3 which is whether there is a positive relation between a firm's level of export and foreign sales and CEO compensation has been proven right.

[Table 6 about here]

Table 6 presents regression of CEO compensation on firm size. The result which is shown in the table 6 indicates that Constant is 294.933 and the regression coefficient of the independent variable which is firm size (total assets) in this case, is 0.0 which is positive. This result also stated that every one percent increase in firm size (total assets) will decrease CEO compensation by 1.5 percent. T – test value of the regression coefficient of the constant is 2.213 which is significant and the t – test value of the regression coefficient of the independent variable which is firm size (total assets) in this case, is – 0.212.

The result which has shown in table 6 was not expected. As this is not same with what was discussed in literature review. Neither has it gone in accordance with others workings. In earlier studies, many scholars have been proved that CEO compensation is positively related with firm size. Though there is no clear indication about why firm size is positively correlated with CEO compensation. Jensen and Murphy (1990) assumed that maybe bigger firms tends to give more compensation to CEO. This might be not related with the ability of CEOs. Rosen (1982) had stated the most accepted reason behind the tendency of larger firms to pay more to CEOs. In his workings Rosen (1982) had shown that if the firm is larger in size, every little difference of talent in CEOs can make a major impact. For this reason, larger firms try to get the most talented CEO for their job and to keep him interested in the firm; the firm tend to give CEO high compensation. Baker and Hall (1998) have stated in their workings that CEOs of larger firms owned more stock in compare with CEOs of smaller firms. This is the reason behind more significance of pay performance sensitivity in larger firms and less significance of pay performance sensitivity in smaller firms and this was assumed by Baker and Hall (1998). In previous studies, Rosen (1990) had examined relation of CEO pay and firm size in different time period with the U.S companies as well as with the UK companies. All his findings indicated that there is not much difference in all pay

to firm size elasticity from beta of 0.3. Beta 0.3 means for each percent of increase in firm size will influence CEO compensation to increase by 30 percent. Conyon and Murphy (2000) also tried to find out the relation between CEO pay and firm size in the UK and U.S firms by using year 1997 data. According to his workings, pay for firm size elasticity is beta 0.3 for U.S firms but beta is 0.2 for UK firms. After all these discussion, it is clear that findings from other scholars suggesting that CEO compensation are positively related with firm size. But the result in table 6 has shown that CEO compensation is negatively correlated with firm size by 1.5 percent. So the question which was raised by hypothesis 4 whether CEO compensation scheme is positively related to firm size has been proven wrong in my findings. Further research is needed in this field. Maybe sales need to include as a factor of firm size with book value of assets as some scholars have included both these factor as a proxy for firm size. If inclusion of sales as a proxy still shows the negative relation between firm size and CEO pay, then it might be an indication that as the time passes on, the relation between CEO compensation and firm size is changing.

[Table 7 about here]

Table 7 presents regression of CEO compensation on accounting factor. The result which is shown in the table 7 indicates that Constant is 284.916 and the regression coefficient of the independent variable which is accounting factor in this case, is 34.447 which is positive. This result also stated that every one percent increase in accounting factor which is return on equity will increase CEO compensation by 2 percent. T –test value of the regression coefficient of the constant is 2.254 which is significant and the t – test value of the regression coefficient of the independent variable which is accounting factor or return on equity in this case, is 0.275.

The result that has been shown in table 7 was expected. As it was discussed in literature review as well as it was found in others findings that CEO compensation is positively related with accounting factor which is return on equity. Shim, Lee and Joo (2009) examined relation of CEO compensation with accounting factor in high – tech and low – tech firm in 2 different time period which are 1999 – 2000 and 2000 – 2001. According to their findings, in both high – tech and low – tech companies and in both time period, CEO compensation is positively related to accounting factor which is return on equity. Beta for high - tech companies in year 1999 – 2000 is 0.081 and in year 2000 – 2001 is 0.102. Beta for low - tech companies in year 1999 – 2000 is 0.039 and in year 2000 – 2001 is 0.07. After all these

discussion, it can be said that CEO compensation is positively related with accounting factor. Therefore, the question which was raised by hypothesis 5 which is whether CEO compensation is positively related to accounting performance has been proven right.

[Table 8 about here]

Table 8 presents regression of CEO compensation on market factor. The result which is shown in the table 8 indicates that Constant is 157.484 and the regression coefficient of the independent variable which is market factor (Tobin's Q) in this case, is 223.626 which is positive. This result also stated that every one percent increase in market factor (Tobin's Q) will increase CEO compensation by 3.5 percent. T –test value of the regression coefficient of the constant is 0.538 which is significant and the t – test value of the regression coefficient of the independent variable which is market factor (Tobin's Q) in this case, is 0.486.

The result which has shown in table 8 was expected. As in literature review and in others findings is has been shown that CEO compensation is positively related with market performance. According to the findings of Kato and Kubo (2005) who tried to figure out relation of CEO compensation and market performance on Japanese firms at the time period from 1986 to 1995, CEO compensation is positively related to market performance. Randøy and Nielsen (2002) also found positive relation between market performance and CEO compensation when they examined on 120 Norwegian and 104 Swedish firms.

Shim, Lee and Joo (2009) also found positive relation between CEO compensation and market performance in high – tech and low – tech firm in 2 different time period which are 1999 – 2000 and 2000 – 2001. According to their findings, in both high – tech and low – tech companies and in both time period, CEO compensation is positively related to market performance. Beta for high - tech companies in year 1999 – 2000 is 0.182 and in year 2000 – 2001 is 0.271. Beta for low - tech companies in year 1999 – 2000 is 0.176 and in year 2000 – 2001 is 0.185. After all these discussion, it can be said that CEO compensation is positively related with market performance. Therefore, the question which was raised by hypothesis 6 which is whether CEO compensation is positively related to market performance has been proven right.

Conclusion:

This paper contributes to the research on examining the determinants of CEO compensation based on the recent data. 193 firms are used as sample firms which are collected from forbes.com special report on CEO compensation on Forbes 500 firms. All data are collected from 2008 financial report. Therefore, this will contribute to the literature by indicating that if there is any change in the scenario. That is to say, if there is any difference in what has been proved in previous literature and shown in others findings on past times and what is happening now.

Research question that is set by this paper is what the determinants of CEO compensation are. This paper assumed some factors that can influence in deciding CEO compensation. Research and development expenditure is one of the factors that can effect on CEO compensation. As it was shown in literature and also found in others findings that CEOs are temp to reduce invest in R & D expenditures to increase accounting earnings in two cases. One of these cases is when CEOs are closer to retirement. At that time CEOs are concern about their compensation that they will get after retirement and to get higher compensation they intend to boost accounting earnings by reducing cost in R & D sector. This problem is known as horizon problem. At this situation, by taking the incentive to give more compensation depends on how much invest in done in R & D expenditures, CEOs intention can be changed. Instead of reducing cost in R & D expenses, they will rather invest more in this sector. By analysing the regression of CEO compensation on horizon problem, this paper also found that increasing R & D expenditures leads to an increase in CEO compensation when CEOs are closer to retirement. Second of these cases when CEOs are intent to reduce R & D cost is when the firm face earnings decline and that decline can be cover up by reducing cost in R & D. By doing this, CEO can hide decline in earnings. This scenario also can be change by taking intensive to give more compensation depends on the investment made in R & D sectors. Previous literature and others findings also proved that right. But in this paper, by analysing regression of CEO compensation on cover up it is found that CEO compensation is negatively related with cover up. So the assumption set by this paper that increasing R & D expenditures lead to an increase in CEO compensation when the firms face an earnings decline that can be reversed by cutting R & D expenditures has been proven wrong. This result wasn't expected though. Maybe selection of firms have influence on getting this result as only 3 percent firms have faced the cover up problem in these selected 193 firms and most of the firm do not have any investment in R & D expenditures as it was

found in their annual report. More research in needed in this sector. Maybe selecting more firms which have faced the cover up problem would give the opposite outcome. Further research is recommended in this section by selecting more firms from R & D intensive industries.

This paper assumed that internationalization is one of the factors that can influence CEO compensation. As it was discussed by previous literatures and also found in others findings that CEO faces more complex situation when the firm enter into international market. CEOs work become harder and involves more risk. CEOs in international level need to be more skilful and more analytical as they are supposed to negotiate with political parties and they are supposed to think carefully of various factors such as religion, lifestyle, labour market, new regulations etc. As their works requires more skills in compare with CEOs of domestic firms, they are supposed to ask for more compensation. Also the availability of high skilled CEOs are not enough to meet the demand which effects on giving higher compensation to highly skilled CEOs. Moreover, international CEOs works involve higher risk, so they are supposed to demand higher risk premium. By analysing regression of CEO compensation on internationalization, this paper has shown that CEO compensation is positively related with sales from foreign affiliates / revenue which is the proxy for internationalization. Thus, this paper has proved the assumption that there is a positive relation between a firm's level of export and foreign sales and CEO compensation.

This paper assumed firm size as another factor that has influence on CEO compensation. Many scholars have proved that CEO compensation is positively related with firm size. Although none of them make any clear indication or explanation about the reason behind CEO compensation's positive correlation with firm size. Some guessed it might be the tendency of big firms to give high compensation. It was Rosen (1982) who stated the most accepted reason behind large firm's tendency to give higher compensation. According to his findings, very little difference in the talent of CEO makes a huge impact in larger firms. Therefore, firms give more compensation to get the best CEOs for their firm and to keep him interested in this firm. By analysing regression of CEO compensation on firm size, this paper has found that firm size (total assets) is negatively related with CEO compensation. This result was unexpected as this result is not similar with what was discussed in literature and what was found in others findings. Thus, the assumption made by this paper whether CEO compensation is positively related to firm size has been proven wrong. Further research is recommended in this field. Maybe sales need to be included as a factor of firm size with the

book value of assets as it were used by some other scholars. If inclusion of sales as a proxy still shows the negative relation between firm size and CEO pay, then it might be an indication that as the time passes on, the relation between CEO compensation and firm size is changing.

This paper assumed that accounting performance and market performance also can influence on CEO compensation. By analysing regression of CEO compensation on accounting factor, this paper has shown that CEO compensation is positively related with accounting factor (ROE). Thus, the assumption made by this paper whether CEO compensation is positively related to accounting performance has been proven right. By analysing regression of CEO compensation on market factor (Tobin's Q), this paper has shown that CEO compensation is positively related with market factor (Tobin's Q). Therefore, the assumption made by this paper whether CEO compensation is positively related to market performance has been proven right. After all these discussion it can be stated that this paper has examined and answered the entire question that were relevant to research question.

Further research can be done on figuring out whether governance structure and ownership structure has any influence on CEO compensation. More research is also recommended on whether CEO compensation is positively related to cover up problem and whether CEO compensation is positively related to firm size.

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Appendices:

Table 1

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Compensation ($m)	193	9.2800	23926.6200	285.957720	1.7514153E3
horizon problem	193	0	1	.16	.363
coverup	193	0	1	.03	.174
Firm Size (total assets)	193	1404.6000	2.1751E6	8.347741E4	2.5020947E5
sales from foreign affiliates / revenue	193	.0000	.9166	.242416	.2715695
Accounting factor (ROE)	193	-8.9259	4.3762	.030238	1.0120598
Market factor (Tobin's Q)	193	-.6345	1.1103	.574504	.2752403
Valid N (listwise)	193				

table 2

Correlation Matrix

		Compensation ($m)	horizon problem	coverup	Firm Size (total assets)	sales from foreign affiliates / revenue	Accounting factor (ROE)	Market factor (Tobin's Q)
Compensation ($m)	Pearson Correlation	1	.242**	-0.024	-0.015	0.056	0.02	0.035
	Sig. (2-tailed)		0.001	0.745	0.832	0.441	0.783	0.628
	N	193	193	193	193	193	193	193
horizon problem	Pearson Correlation	.242**	1	-0.077	-0.07	-0.042	0.047	.142*
	Sig. (2-tailed)	0.001		0.288	0.336	0.558	0.514	0.049
	N	193	193	193	193	193	193	193
coverup	Pearson Correlation	-0.024	-0.077	1	-0.038	.196**	-0.031	-0.041
	Sig. (2-tailed)	0.745	0.288		0.598	0.006	0.667	0.567
	N	193	193	193	193	193	193	193
Firm Size (total assets)	Pearson Correlation	-0.015	-0.07	-0.038	1	-0.137	-0.024	-.215**
	Sig. (2-tailed)	0.832	0.336	0.598		0.057	0.739	0.003
	N	193	193	193	193	193	193	193
sales from foreign affiliates / revenue	Pearson Correlation	0.056	-0.042	.196**	-0.137	1	-0.043	-0.006
	Sig. (2-tailed)	0.441	0.558	0.006	0.057		0.555	0.935
	N	193	193	193	193	193	193	193
Accounting factor (ROE)	Pearson Correlation	0.02	0.047	-0.031	-0.024	-0.043	1	-0.038
	Sig. (2-tailed)	0.783	0.514	0.667	0.739	0.555		0.598
	N	193	193	193	193	193	193	193
Market factor (Tobin's Q)	Pearson Correlation	0.035	.142*	-0.041	-.215**	-0.006	-0.038	1
	Sig. (2-tailed)	0.628	0.049	0.567	0.003	0.935	0.598	
	N	193	193	193	193	193	193	193

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 3

Regression of CEO Compensation on horizon problem

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	104.383	133.442		.782	.435
	horizon problem	1168.128	338.463	.242	3.451	.001

a. Dependent Variable: Compensation ($m)

Table 4

Regression of CEO Compensation on Coverup

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	293.329	128.375		2.285	.023
	coverup	-237.119	728.089	-.024	-.326	.745

a. Dependent Variable: Compensation ($m)

Table 5

Regression of CEO Compensation on Internationalization

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	198.711	169.364		1.173	.242
	sales from foreign affiliates / revenue	359.904	465.923	.056	.772	.441

a. Dependent Variable: Compensation ($m)

Table 6

Regression of CEO Compensation on Firm size

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	294.933	133.267		2.213	.028
	Firm Size (total assets)	.000	.001	-.015	-.212	.832

a. Dependent Variable: Compensation ($m)

Table 7

Regression of CEO Compensation on Accounting factor

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	284.916	126.431		2.254	.025
	Accounting factor (ROE)	34.447	125.193	.020	.275	.783

a. Dependent Variable: Compensation ($m)

Table 8

Regression of CEO Compensation on Market factor

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	157.484	292.984		.538	.592
	Market factor (Tobin's Q)	223.626	460.142	.035	.486	.628

a. Dependent Variable: Compensation ($m)

the UNIVERSITY of GREENWICH

Department of Accounting & Finance

Dissertation (FINA 1037)

M.Sc. Accounting & Finance
M.Sc. Finance & Financial Information Systems
M.Sc. Financial Management
M.Sc. International Banking & Finance

Dissertation (FINA1073)

M.Sc. Finance and Investment Analysis

TASK 1: PROGRESS REPORT FORM

Students should complete the following details prior to the meeting, and hand to the supervisor for comments and signing.

Student's name: Md. Shamsuzzoha
Student ID: 000524142
(Working)Title of dissertation: Executive Compensation Scheme: Impact On Corporation.
Supervisor's name: Jing Huang / Julia Spence-Dodd (1/10/09)

Task 1: Brief presentation on research design / methodology to be used in the study

Supervisor's comments:
Need to add relevant theories in literature review. Have to mention others findings and their methodology. Have to find more independent variables related with the hypothesis such as company size, return on equity, total asset etc.

Indicative mark for presentation/discussion:
Have to select about 150 to 200 firms as samples.
Need to contact with library stuff to collect data from data base.

JSD Analysis

Supervisor's signature:.....
Date: 12 / 07 / 2009 1/10/09

Students should take a copy of this form for their own records before handing it in to the Business School Office.

New Supervisor

APPENDIX B

the UNIVERSITY of GREENWICH

Department of Accounting & Finance

Dissertation (FINA 1037)

M.Sc. Accounting & Finance
M.Sc. Finance & Financial Information Systems
M.Sc. Financial Management
M.Sc. International Banking & Finance

Dissertation (FINA1073)

M.Sc. Finance and Investment Analysis

TASK 2: PROGRESS REPORT FORM

Students should complete the following details prior to the meeting, and hand to the supervisor for comments and signing.

Student's name: Md. Shamsuzzoha

Student ID: 000524142

(Working) Title of dissertation: Determinants of executive compensation.

Supervisor's name: Julian Spencer-Wood

Progress made:
Title selected as "determinants of executive compensation"
Hypothesis:

I) Increasing R&D expenditures leads to an increase in CEO compensation when the CEO approaches retirement

II) Increasing R&D expenditures leads to an increase in CEO compensation when the firm faces an earnings decline that can be reversed by cutting R&D expenditures.

III) CEO compensation is positively related to market performance

IV) CEO compensation is positively related to accounting performance

V) There is a positive relationship between a firm's level of export and foreign sales and CEO compensation.

VI) CEO compensation is positively related to firm size.

Compensation is selected as dependant variable which is the total of cash pay and share owned. R&D intensity, firm size, internationalization, accounting factor and market factor are used as independent variables. Horizon problem and cover up are the attributes of R&D intensity. Firm size is measured by the book value of total assets. Internationalization is measured by the percentage of the firm's total revenue generated by export and sales from foreign affiliates. ROE is the attribute of accounting factor and Tobin's Q is the

attribute of market factor.

200 firms are selected as sample from Forbes.com's special report on CEO compensation. Data on CEO pay, shares owned and age is collected from there. Rest of the data are collected manually from each company's annual report of 2008 and from advfn.com where information is gathered from company's annual reports.

This section to be completed by the student IMMEDIATELY AFTER the meeting with the supervisor and BEFORE it is signed (hand-written is acceptable):
Action(s) needed:

e-mail to do

Supervisor's signature:.....

Date: 1/10/07

Students should take a copy of this form for their own records before handing it in to the Business School Office.