Global Recession and Determinants of CEO Compensation: An Empirical Investigation of Listed Indian Firms

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Abstract

This paper examines the determinants of CEO compensation using six year data on firm performance, corporate governance and top executive compensation from a large sample of 132 listed Indian firms. A linear regression model is used to develop explanations for total CEO cash compensation. Key contributions of the study are the findings related to the effect of firms' stock price increase on their respective CEO compensation both before and after economic recession. Before the recession, the increase in stock price between consecutive years meant higher CEO compensation (This finding is not substantiated in the post-recession data). It is found that CEOs who also chair their firm's board of directors tend to have higher compensation. PSUs have lower total CEO compensation when compared to private sector firms. Firms with greater percentage of independent directors pay less.

Key Words: Corporate Governance, CEO Compensation, Stock Price, Financial Performance, Global Recession

1. Introduction

The level of compensation and the extent of pay-for-performance for chief executive officers (CEOs) has been a topic of considerable controversy in the academic and business communities. It involves issues ranging from labor economics and industrial organization, to accounting, finance, law, organization behavior and strategic management (Talmor & Wallace, 2001). Compensation packages can play an important role in motivating top managers. Therefore, it is important to understand how corporations set CEO compensation packages and to study the link between compensation and performance (Parthsarathy, Menon & Bhattacherjee, 2006).

The board of directors in modern corporations serve to institutionalize the process of fixing managerial compensation and monitoring performance, thereby ensuring that the wealth maximization objective of the shareholders is maintained (Parthsarathy, Menon & Bhattacherjee, 2006). At the same time, members of the top management like the CEOs are often members of the board. In the context of executive compensation, good corporate governance requires certain mechanisms in the processes of fixing compensation and monitoring top management performance. These include the presence of "independent" directors on the board, division of responsibilities between the chairman and the CEO and the establishment of compensation committees. Observable as well as unobservable shocks influencing CEO compensation packages might also have an impact on firm performance and some of the other firm-specific characteristics, e.g., growth opportunities, firm size, and ownership structure. It is likely that observed relationship between CEO compensation and firm-specific characteristics reflect the effects of CEO compensation on the latter rather than vice versa. Thus, it is important to control for the potential endogeneity problem in CEO compensation analysis (Ozkan, 2007).

In comparison to the US, empirical literature on CEO compensation in India is rather limited. There is no literature available on the CEO compensation with recent data and more specifically, no study that investigates the effect of stock price changes on executive compensation. In addition, there are no studies to establish the effect of recession on CEO compensation. We not only study the effect of stock prices on CEO compensation but also do so across six years. We analysed data for four years before the 2008 recession, and two years after the recession (2009-2010).

Additionally, in our empirical analysis we control for a comprehensive set of corporate governance variables, foreign ownership, proportion of independent directors on board, board size and firm level risk.

2. Context of the Research: Global Economic Recession

India's integration into the world economy over the last decade has been remarkably rapid. Integration into the world implies more than just exports. Going by the common measure of globalization, India's two-way trade (merchandize exports plus imports), as a proportion of GDP, grew from 21.2 percent in 1997-98, the year of the Asian crisis, to 34.7 percent in 2007-08 (Subbarao, 2009). Second, India's financial integration with the world has been as deep as India's trade globalization, if not deeper. If we take an expanded measure of globalization, that is the ratio of total external transactions (gross current account flows plus gross capital flows) to GDP, this ratio has more than doubled from 46.8 percent in 1997-98 to 117.4 percent in 2007-08 (Subbarao, 2009).

Moreover, Martinez and Santiso (2003) emphasize, in their study, the relationship between politics and financial markets in emerging economies. In emerging markets, financial turbulence and politics are closely linked. Also, output losses from financial crises tend to be larger in emerging markets than industrial countries according to these authors. The emerging literature suggests that political variables are indeed significant explanatory factors in emerging markets' crisis. Countries like India, therefore, are more prone to crashes than the developed economies.

The economic boom in India that preceded the 2008 downturn was dependent upon greater global integration in three ways: greater reliance on exports particularly of services; increased dependence on capital inflows, especially of the short-term variety; and the role these played in underpinning a domestic credit-fuelled consumption and investment boom. These in turn made the growth process more vulnerable to internally and externally generated crises, as is now becoming clear.

According to Roberts and Jones (2009), at the beginning of 2008, it was clear that something unexpected and unanticipated was happening in financial markets and that knowledge had failed market participants in important ways. The Indian stock markets also followed rapid fluctuations of the overseas markets and more so because it was way beyond what the fundamentals justified. Indian industry and exports had been showing signs of slowing down. Due to rising inequality, the market in India was narrow and dependent on investments and exports for growth (Kumar, 2008). As a result, Indian economic growth started decelerating early in 2008, even before the effects of global slowdown were transmitted through sharply declining exports. Real GDP growth, which was 9% in the financial year April 2007 to March 2008, decelerated to 7.6% in both the subsequent quarters. Industrial production peaked in December 2007, fell by 6.5% in April 2008 and remained well below the earlier peak until January 2009. So the internal bubble-generated growth process had already begun to slacken when the impact of the global crisis created further adverse pressures (Ghosh & Chandrasekhar, 2009).

The decoupling theory, which was intellectually fashionable even as late as 2008, held that even if advanced economies went into a downturn, emerging economies will remain unscathed because of their substantial foreign exchange reserves, improved policy framework, robust corporate balance sheets and relatively healthy banking sector. In a rapidly globalizing world, the 'decoupling theory' was never totally persuasive. Given the evidence of the 2007 end and 2008 - capital flow reversals, sharp widening of spreads on sovereign and corporate debt and abrupt currency depreciations - the 'decoupling theory' stands totally invalidated. Although, there is considerable variation across countries, the notion that in a globalized world, growth prospects of emerging economies can be undermined by the financial crisis is now reinforced (Subrahmanyam, 2009). India too had been impacted by the crisis - and by much more than it was suspected earlier.

3. Research Gap

The paper examines the determinants of CEO compensation in large listed Indian companies. The

context of the research is the economic recession and therefore, we develop two models to compare the impact of different determinants before and after the recession.

The remainder of the paper is organized as follows: The next section provides an overview of literature review on CEO compensation determinants and therefore, develops the hypotheses of this study. The section after that presents the variables used in the analysis, the regression model and the data sources used. The results - descriptive statistics, correlation matrices and regression results follow this section. The last section analyses the findings of the paper and presents the conclusion.

4. Literature Review

4.1 CEO Compensation and Corporate Governance

The importance of corporate board structure and executive compensation as a mechanism of corporate governance has always been a matter of considerable academic debate in both theoretical and empirical literature. In a typical agency theory framework, the assumption is that there is a mismatch between the interest of the shareholders, who are the owners, and that of the management, who run the corporation, on behalf of the shareholders. Economic theory of executive pay focuses on the design of optimal compensation schemes to align the interests of hired managers and shareholders. Agency theory identifies several factors by which these interests may differ; including the level of effort exerted by the manager and problems resulting from the unobservabilty of the agent's relevant skills. The design of an optimal compensation contract is essentially a trade-off between different incentive problems and risk-sharing considerations (Talmor & Wallace, 2001).

In order to better monitor the managers, shareholders appoint the board of directors (Ghosh, 2003). Large boards are likely to be efficient monitors of the CEOs and other executive directors. Results suggest that firms with weaker governance structures have greater agency problems which results in greater CEO compensation but lower performance (Core, Holthausen & Larcker, 1999). There is consistent evidence of a negative relation between the compensation predicted by the board and ownership structure variables and subsequent performance. This finding suggests that the weightings of the board and ownership variables in the compensation equation relate to the effectiveness of the firm's governance structure, rather than using these variables as proxies for the determinants of the CEO's equilibrium wage.

Larger boards are less effective in monitoring and more susceptible to influence of CEO power (Ozkan, 2007). The author suggests that board structure matters for the total CEO compensation level and non-executive directors do not seem to provide monitoring for the level of total CEO compensation. A strong counterargument expressed by Fama and Jensen (1983) is that the directors' concern for developing reputation as experts in decision controls provides them with the incentive to ensure the well-running of the company. Davila & Penalva (2004) point out that weaker corporate governance is associated with lower variability in the executive pay and higher cash components of the total pay.

The institution of corporations in emerging economies is different from that of the developed countries. Emerging economies are basically identified by poor corporate governance system, block shareholdings, large intervention of families in both management and control, lack of standardized accounting measure and less transparency in reporting data. The board of directors of an Indian firm is responsible for setting the CEO's and top executives' pay. "The board is therefore responsible for designing incentive systems and determining salary and bonuses" (Jaiswall, 2005). In light of a conflict of interest, many firms have set up a remuneration committee composed of independent directors and delegated the task of designing management incentive schemes and setting the top executive pay. "Corporate governance guidelines in India (SEBI Committee on Corporate Governance, 2003) strongly advocated the use of remuneration committees although many firms do not comply with the recommendation" (Jaiswall, 2005). The independent directors that make up the remuneration committee may therefore be biased toward increasing the CEO's

pay regardless of the firm's performance.

All the recommendations of different committee in different countries point out some common features: (1) Size of the board should not be too large or too small. The optimum board size that is largely recommended is twelve. (2) Majority of the board should be comprised of non-executive directors only. The recommended proportion of non-executive directors is in between two-third to three-forth. (3) Most of the compensation should be based on the performance of the firm, in the form of stock options or others. Disclosure of all components of the compensation package is a mandatory recommendation for all the committees (Jaiswall, 2005).

4.2 Board Size

There is evidence that firm performance falls with the increase in board size due to free rider problems. Jensen (1993) also argues that boards of directors are ineffective because boards are too large; board culture discourages conflict, CEO determines the agenda and provides the information to the board; the managers and non-managers on a typical board have little equity ownership and also the CEO and the board chair is frequently the same person. Moreover, boards usually rely on the compensation consultants hired by the CEO, and this may lead to compensation contracts that have been optimized not for the firm, but for the CEO.

The size of the board of directors is expected to be associated with less effective board monitoring, based on the argument that larger boards are less effective and more susceptible to the influence of the CEO (Jensen, 1993; Yermack 1996; Talmor & Wallace, 2001). Pfeffer (1981) argues that internal board members are more loyal to the management, and thus the CEO can exert relatively more influence over internal (as opposed to outside) board members. The CEO is also board chair in about 76% of the companies and an average board consists of 13 directors (Core et al., 1999).

For a sample of 414 UK companies in 2003, Ozkan (2007) finds that the proportion of non-executive directors has a positive impact on CEO compensation, suggesting that non-executive directors do not play a monitoring role. The problems with coordination, communication, and decision-making can hinder effectiveness of the board, which might translate into a higher cash compensation for CEOs as the number of director increases. Fung et al (2001), however, have shown that, in the Chinese context, firms with a larger number of directors tend to restrict CEO compensation.

Hypothesis 1a: Ceteris paribus, a negative association will exist between a firm's board size and total CEO compensation.

4.3 Percentage of Independent Directors on the Board

Lambert et al. (1993) and Boyd (1994) document a positive relation between CEO compensation and the percentage of the board composed of outside directors, whereas Finkelstein and Hambrick (1989) find that compensation is unrelated to the percentage of outside directors on the board. The proportion of non-executive directors on board does not have a significant impact on CEO compensation (Ozkan, 2007). CEO compensation is also higher when outside directors are older and serve on more than three other boards.

Usually 60% directors are independent (Shivdasani, 1993; Bhagat & Black, 1997). The objective is to ensure the presence of truly independent directors on the board so that they can play an active role in upholding shareholder interests (Parathsarathy et al., 2006). According to the latest amendment to clause 49 of the Listing Agreement of SEBI, the number of independent directors on the board should not be less than half of the total strength of the board when the chairman is an executive director, and should not be less than one-third of the total strength of the board when the chairman is a non-executive director. So in theory, the independent directors play a critical role in designing the compensation of the CEO apart from their monitoring roles.

Each of the three variables that measure the lack of independence of the outside directors (outside directors appointed by the CEO, gray outside directors, and interlocked outside directors) has a positive coefficient, implying that less independent outside directors are associated with greater CEO compensation (Core et al., 1999). The negative coefficient on the percentage of

inside directors is consistent with the mixed empirical evidence on the monitoring value of additional outside directors, and provides no support for the common contention that outside directors are better monitors of management than internal directors.

Talmor and Wallace (2001) find that director independence and effectiveness acts as a substitute to incentive compensation. Also, there is a positive association between firm performance and board strength. Together with the finding that companies that compensate 'excessively' tend to have higher subsequent performance, there is support to the thesis of efficient contracting. In India, according to the Kumar Mangalam Birla Committee Report (1999), in case a company has a non executive chairman, at least one third of the board should comprise of independent directors and in case a company has an executive chairman, at least half of the board should be independent (Proportion of inside and outside directors).

Hypothesis 1b: Ceteris Paribas, a negative association exists between the percentage of independent directors in the board and total CEO compensation.

4.4 Dual Leadership

With respect to the board-of-director variables, we find that CEO compensation is higher when the CEO is also the board chair; the board is larger; greater percentage of the board is composed of outside directors and the outside directors are appointed by the CEO or are considered "gray" directors. Activist shareholders have argued for the separation of the board chair and CEO, and a number of empirical studies suggest that agency problems are higher when the CEO is also the board chair (e.g., Yermack, 1996). However, Conyon (1997) finds that separating the roles of chairman and CEO which might potentially mitigate agency problems associated with top pay setting, plays a minor role in influencing director pay.

A dual leadership structure refers to a situation where the CEO of the firm is also the chairman of the board of directors. A dual leadership structure will lead to higher total CEO pay. The CEO's power base widens when the CEO also serves as the chairman of the board (Talmor & Wallace, 2001). This led Jensen (1993) and others to recommend that the function of the board chair be separated from the CEO. Finkelstein and D'Aveni (1994) argued that a separate leadership structure will lead to a greater degree of independence to the board in various issues related to monitoring managerial performance. There is evidence that moral hazard problem increases when CEO becomes the Chairman of the board and therefore it reduces the performance of the firm (Jensen, 1993).

Hypothesis 1c: Ceteris paribus, a CEO who is also the chairperson of the Board of Directors will earn a higher total compensation than his counterpart who is not the chairperson.

4.5 CEO Compensation and Firm Performance

The link between executive compensation and corporate performance has been explored extensively in western countries, especially in the US. The question whether executive compensation reflects company performance is a controversial one with different authors taking up widely different positions on the issue.

There is a positive and significant link between CEO cash compensation and performance while the link between total compensation and performance is positive but not significant (Ozkan, 2007). Jaiswall (2005) in a study of 193 Indian firms finds a significant positive relation between CEO pay and a firm's performance (return on assets and Tobin's Q). Thus, a CEO is rewarded for the good performance of the firm. Using data from a large number of firms in the manufacturing sector, Ghosh (2003) finds that the board's compensation depends on current and past year performance while CEO compensation depends on only current year performance. Yermack (1996) finds no association between the percentage of outside directors and firm performance. Yermack (1996) also provides evidence that firm value and performance is a decreasing function of board size.

The results from standard agency models suggest that the level of pay is an increasing function of firm performance. Firm performance is measured using the accounting return on assets and the annual stock market

return on the common stock. Return on Assets is the percentage of corporate Return on Assets or the ratio of earnings before interest and taxes to total assets for the prior year. Stock return is the percentage of stock market return for the prior year. Theoretical models (e.g., Banker and Datar, 1989) suggest that compensation risk (and the level of expected compensation) may either increase or decrease with firm risk. Cyert et al. (1997) find that CEO compensation is higher at firms with greater stock return volatility. The empirical results indicate that there is a positive and significant relationship between firm performance and the level of CEO cash compensation while the relationship is positive but not significant for total compensation (Ozkan, 2007). Results also indicate that institutional ownership has a positive and significant influence on CEO pay-for-performance sensitivity of option grants.

Empirical evidence in developed countries generally supports a positive relation between pay and performance although there are differences in what type of performance measure (return on assets, stock returns) is important. As Jaiswall (2005) states: "Problems with ROA and other accounting measures are that they encourage a short term outlook and they can be manipulated by management via accruals accounting."

Hypothesis 2: Ceteris paribus, a positive association will exist between a firm's ROA and the total CEO compensation.

4.6 CEO Compensation and Nature of the Firm

Consistent with prior theory and empirical work (Rosen, 1982 and Smith and Watts, 1992), we expect that larger firms with greater growth opportunities and more complex operations will demand higher-quality managers with higher equilibrium wages. According to previous studies (Conyon & Murphy, 2000), larger firms pay greater CEO compensation. Company size and sales have a significant and positive impact on the total compensation level (Ozkan, 2007). A number of earlier studies (Core et al 1999; Ramaswamy et al 2000; Talmor and Wallace 2001; Fung et al 2001; Ghosh 2003) on executive compensation have incorporated firm size as an explanatory variable. In this paper, firm size is used as a control variable so that any differences in the CEO compensation due to firm size across companies are captured. In accordance with prior research, we have used log of total assets as the proxy for firm size.

Company size provides an indication of managerial responsibility and job complexity. Researchers have predicted a positive relation between firm size and the level of CEO compensation (Talmor & Wallace, 2001) and executive pay (e.g., Ciscel and Carroll, 1980, Schaefer, 1998). However, using a sample of the top 150 Indian firms, Ramaswamy et al., (2000) hypothesized that human capital, firm performance and corporate governance variables jointly determine the CEO remuneration. They found that firm size was not a significant explanatory variable for CEO compensation, rather firm performance (as measured by Return on Assets) was.

Hypothesis 3a: Ceteris paribus, the larger the size of the company, the greater is the total CEO compensation.

Jaiswall (2005) found that there is some evidence that firms with foreign shareholders pay higher compensation to their CEOs. There has been a significant amount of foreign direct investments (FDI) inflows in India over the last decade.

Hypothesis 3b: Ceteris paribus, CEO of a firm with foreign shareholding has higher total compensation than one with only domestic shareholding.

The case of public sector undertakings (PSU) is unique to the Indian context where these companies are owned and managed by the government. "Compensation in PSUs is decided by the government and is subject to government rules and regulations. The firm on its own has little or no autonomy in deciding its managerial salaries" (Jaiswall, 2005). Therefore, a dummy variable, representing whether a firm is a PSU will be used as a control variable in our model.

Hypothesis 3c: Ceteris paribus, public sector CEO pay will be less than private sector CEO pay.

Although, researchers have contributed to the establishment of a relationship between stock price and firm performance, not many studies exist on the effects of stock prices on the CEO compensation. Abowd's (1990) results showed that paying an incremental 10 per

cent bonus to CEOs for good stock performance results in a 4 per cent-12 per cent increase in stock performance in the subsequent period. Rosenstein and Wyatt (1990) provide evidence that shareholder wealth is affected by the proportion of outside directors by documenting a positive stock price reaction at the announcement of the appointment of an additional outside director. A firm's stock market risk is negatively related to CEO compensation (Jaiswall, 2005). This finding counters the argument that managers in high risk firms should be paid more (Gomez-Mejia et al., 2003). The Greenbury Report (1995), UK highlighted that directors should not be rewarded for any increases in the share prices (or any other indicators) which might reflect inflation or general market movements, i.e. which are not directly related to the managerial actions. Additionally, it was recommended that executive directors' remuneration should be structured so as to link rewards to corporate performance.

The primary hypothesis of this study is:

Hypothesis 4: Ceteris paribus, the percentage increase in the current year's stock price relative to previous year should have a positive influence on the total CEO compensation.

This paper attempts to integrate the literature cited above and develop a model explaining the determinants of CEO compensation in Indian firms. The data set is from the recent period2004 to 2010 and covers 132 non-financial firms in five sectors - manufacturing, IT, telecom, energy and real estate. An Indian study involving stock prices changes in the pre- and post-recession periods has not been conducted before.

5. Methodology

5.1 Variables

The variables used in this study can be clubbed into the following five categories: sector/industry, corporate governance, firm size, firm performance, data year. All the variables are discussed in details in this section (See Tables 1-3). There are five sectors, namely IT, real estate, telecom, energy and manufacturing, included in the study. The performance variables, compensation strategies and stock market movements for financial firms are completely different and hence, they were left out of the sample. The total numbers of firms included in the sample for manufacturing, IT, telecom, energy and real estate are 87, 10, 6, 10 and 19 respectively. Thus, data has been collected from these 132 listed firms in India.

One industry specific variable used in the study is beta which essentially is the systematic risk that a firm is prone to. It usually displays the dependence of a firm on stock market fluctuations and the external environment. Three variables have been included in the study to represent corporate governance - boardsize, perc_ind_dir and ceo_chair. Board size is the total number of directors on the board. Per_ind_dir measures percentage of the Board's directors who are not executives of the firm and are hence, not on the payroll of the firm. Inside directors is the percentage of the boards who are managers, retired managers, or relatives of the current managers. Outside directors appointed by the CEO is the number of outside directors on the board appointed by the CEO as a percentage of board size. CEO_chair is an indicator variable equal to one if the CEO is also chairman of the board, and zero otherwise.

Two variables PSU and Foreign have been used to capture the effect of public or private undertaking and the presence of foreign shareholding on the total compensation of the firms' CEO respectively. Age of the firm has been also been used as a variable in the study. Year-wise dummy variables have also been used as shown in Table 2 and 3 for pre- and post-recession data respectively.

Firm size has been captured using the natural log of the total assets of the firm. In order to measure the performance of the firm, two variables namely, ROA and Pct_inc_stock have been used. ROA is measured by dividing operating profits by total assets and Pct_inc_stock refers to the percentage increase in current

Table 1 : List of variables used in the study

Variable	Acronym	Definition	Predicted effect (based on theory and literature) on the total compensation
Total no. of Directors in the Board.	BoardSize	The sum total of all the directors in the Board.	-
Percentage of Independent Directors in the Board.	Perc_Ind_Dir	Percentage of the Board's directors that are not executives of the firm.	-
Dummy Variable coded (1) if CEO is the Chairman of Board, (0) Otherwise.	CEO_Chair	The presence of Dual Leadership where the CEO of the firm is also the Chairman of the Board	+
Dummy Variable coded (1) if the firm is a Public Sector Undertaking, (0) Otherwise.	PSU	Signifies whether the firm is a public or private sector undertaking	-
Dummy Variable coded (1) if the firm has foreign shareholders, (0) Otherwise.	Foreign	Signifies whether the firm has foreign or only domestic shareholders	+
Log of total assets.	Size	The natural log of total assets	+
Operating Profits divided by total assets	ROA	Calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage.	+
Systematic Risk of the firm	Beta	Beta is also referred to as financial elasticity or correlated relative volatility, and can be referred to as a measure of the sensitivity of the asset's returns to market returns, its non-diversifiable risk, its systematic risk, or market risk.	-
Percentage Increase in current year's stock price relative to last year.	Pct_Inc_Stock	Percentage Increase in current year's stock price relative to last year. All data has been taken as on 31st December.	+
Total years since establishment of firm	Age	Total number of years of the firm's existence.	+

year's stock price relative to last year (data being noted as on 31st December each year).

Pre-Recession Variables: Apart from the variables highlighted in the table above, the following binary variables have also been used for the pre-recession analysis. The excluded sector is 'Manufacturing' sector and the excluded year is 2004.

Table 2

Sector1	Dummy Variable coded (1) if the firm belongs to IT Sector, (0) Otherwise.
Sector2	Dummy Variable coded (1) if the firm belongs to Telecom Sector, (0) Otherwise.
Sector3	Dummy Variable coded (1) if the firm belongs to Energy Sector, (0) Otherwise.
Sector4	Dummy Variable coded (1) if the firm belongs to Real Estate Sector, (0) Otherwise.
Year1	Dummy Variable coded (1) if the year is 2005, (0) Otherwise.
Year2	Dummy Variable coded (1) if the year is 2006, (0) Otherwise.
Year3	Dummy Variable coded (1) if the year is 2007, (0) Otherwise.

Post-Recession Variables: Apart from the variables highlighted in the table above, the following binary variables have also been used for the post-recession analysis. The excluded sector is 'Manufacturing' sector and the excluded year is 2009.

Table 3

Sector1	Dummy Variable coded (1) if the firm belongs to IT Sector, (0) Otherwise.
Sector2	Dummy Variable coded (1) if the firm belongs to Telecom Sector, (0) Otherwise.
Sector3	Dummy Variable coded (1) if the firm belongs to Energy Sector, (0) Otherwise.
Sector4	Dummy Variable coded (1) if the firm belongs to Real Estate Sector, (0) Otherwise.
Year1	Dummy Variable coded (1) if the year is 2010, (0) Otherwise.

Finally, we have used log of total CEO compensation, lnTotalCEOComp as the dependent variable. One justification for this practice is that the typical "Guide Charts" used by the human resource consultants to set compensation levels are constructed by regressing the logarithm of compensation on the logarithm of firm size (Amacom, 1975). The total CEO compensation is the sum of total cash compensation that includes salaries, bonuses, and perquisites. Executive pay is disaggregated into salary, bonus pay, and perquisites although Jaiswall (2005) suggests that the division of total compensation into three categories is often arbitrary. We are not using stock options because the reporting of stock options is very mixed (for the few firms that have options) and we cannot develop consistent measures across firms.

5.2 Regression Model

We use regression analysis to examine the various determinants of CEO Compensation. The model is:

We have two separate models for pre-recession and post-recession data.

5.3 Data

The sample covers a 6-year period from 2004-07 and 2009-10 for 132 non-financial companies from the CMIE - Prowess Database. CEO compensation is the total cash component - salary and performance bonus. We use the

BSE 200-Index companies as our source database. These are the two hundred largest listed firms on the Bombay Stock Exchange. These firms disclose the CEO's pay whereas the pay of the top executives of the small companies often falls below the threshold required for disclosure. Data are collected for the two periods termed pre- and post-recession. Data from 2004 to 2007 have been collected for the first period and data for 2009 and 2010 have been collected for the latter. After data cleaning, the total number of relevant and usable observations for the two periods has been 251 (pre-recession) and 203 (post-recession) respectively.

Before undertaking any statistical test, a basic check for accuracy of the data file was conducted in order to ensure that no data was missing or incorrectly entered. Univariate normality of the quantitative variables was checked by examining their skewness and kurtosis values. The data needs to follow a normal distribution in order for most analyses to work properly. There are two aspects to normality of a distribution, skewness and kurtosis, and both must be tested before normality can be established. Skewness describes how unevenly the data is distributed with a majority of scores piled up on one side of the distribution and a few stragglers off in one tail of the distribution. Skewness is often but not always caused by outliers. Kurtosis describes how "peaked" or "flat" a distribution is. If too many or all of the scores are piled up on or around the mean, then the distribution is too peaked and is not normal; vice versa for a too flat distribution. The skewness and kurtosis values were all within the acceptable range of +2.0 to -2.0. Before undertaking regression, it was tested that there was no problem of multi-collinearity between the independent variables in any of the multiple-regression analyses. The values of the Variance Inflation Factor (VIF) lie between 1.000 and 3.012 which are well within the acceptable limit of ten (Stevens, 2002).

6. Results

The descriptive statistics for both periods' data have been exhibited in Table 4 and 5. Some key observations can be made from these tables. Studies in western countries reveal that the CEO is also board chair in about 76% of the companies and an average board consists of 13 directors (Core et al., 1999) and usually, 60% of the directors are independent directors. The average boardsize across the five sectors as seen in Table 4 and Table 5 are 14.03 and 13.85 which is nearly the same as the advanced economies. The average perc_ind_dir in the two sets of observations are 74% and 76% respectively. One interesting result is that the TotalCEOcomp in the Energy Sector is substantially lower than that in other sectors in both the Tables (Rs. 9,283,566 and Rs. 18,900,000). The energy sector has the highest aggregate assets in comparison to other firms, Rs. 31790 and Rs. 33234 crores respectively. On the other hand, ROA of IT sector is the highest (0.22 for years 2004-07 ad 0.23 for 2009-10) owing to least total assets (in crores). Real estate sector is the most risky sector with high beta values of 1.41 and 1.69, in pre- and post-recession periods respectively.

Tables 4 and 5 reveal some very interesting findings. The beta values have gone up for all sectors between the two time periods i.e. the sectors' assets have become more susceptible to market changes. Another interesting finding is that between these two time periods, foreign shareholding in the IT sector increases from 16% to 47% and foreign shareholding in the Telecom sector increases from 17% to 29%. These results cannot be relied upon because the number of firms across the time periods is not same for both sectors and the sample size is also small. However, one valid finding that emerges from these descriptive statistics is that in both these sectors, as foreign shareholding increases, the percentage of firms whose CEO is also the chairperson of the board, comes down drastically. Theoretically, this is a valid finding because as the foreign intervention increases in any firm, its corporate governance practices improve and hence, the probability of CEO also being the chair is less. Thus, this negative relationship between foreign shareholding and CEO also being the Chairperson is an important finding of the study.

Table 4 : Descriptive Statistics: Pre-recession
Pre-Recession (Averages over 2004-07)

Variables	Sector wise averages				
	Manufacturing	IT	Telecom	Energy	Real Estate
Observations	176	25	6	20	24
TotalCEOcomp	Rs. 24,200,000	Rs. 19,800,000	Rs. 70,000,000	Rs. 9,283,566	Rs. 21,000,000
boardsize	13.70	11.24	17.00	14.30	13.92
perc_ind_dir	72%	81%	86%	68%	63%
ceo_chair	27%	40%	67%	15%	38%
psu	11%	0%	0%	40%	17%
foreign	26%	16%	17%	15%	33%
Assets (in Crores)	9027	3549	12430	31790	4088
ROA	0.14	0.22	0.09	0.15	0.10
Beta	0.89	0.81	0.77	1.09	1.41
Age	40.74	24.60	13.83	34.45	32.50

Table 5 : Descriptive Statistics: Post-recession
Post Recession (Averages over 2009-10)

Variables	Sector wise averages				
	Manufacturing	IT	Telecom	Energy	Real Estate
Observations	124	17	7	26	29
TotalCEOcomp	Rs. 47,300,000	Rs. 43,400,000	Rs. 84,900,000	Rs. 18,900,000	Rs. 59,800,000
boardsize	13.52	12.35	15.57	14.77	13.03
perc_ind_dir	73%	77%	91%	72%	69%
ceo_chair	31%	24%	14%	15%	45%
psu	10%	0%	0%	35%	7%
foreign	36%	47%	29%	15%	41%
Assets (in Crores)	19961	10099	27986	33234	15390
ROA	0.14	0.23	0.08	0.12	0.09
Beta	0.96	0.87	0.89	1.20	1.69
Age	39.93	25.82	15.57	36.42	30.38

Correlation values between the independent variables have been given in Tables 6 and 7 for the pre- and post-recession periods, respectively. Age of the firm is positively correlated with board size, size of the firm (Total assets) and ROA. In fact there is relatively higher correlation between age of the firm and its size (0.34 in 2004-07 period and 0.30 in 2009-10 period). Similarly, and not surprisingly, there is relatively high correlation between size of the firm (in total assets) and the size of the board of directors (0.45 in 2004-07 period and 0.31 in 2009-10 period). Since, none of the correlation values are very high, we can assert that there is no significant problem of multi-collinearity when interpreting the results of the regression.

Table 6 : Correlation Matrices
Pre-Recession (2004-07)

	boardsize	perc_ind_dir	Size	ROA	beta	pct_inc_stock	age
boardsize	1.00						
perc_ind_dir	-0.14	1.00					
size	0.45	-0.21	1.00				
ROA	0.03	-0.01	0.04	1.00			
beta	0.00	0.06	-0.02	-0.36	1.00		
pct_inc_stock	-0.10	-0.13	-0.29	-0.06	0.15	1.00	
age	0.22	0.00	0.34	0.13	-0.03	-0.18	1.00
Post-Recession (2009-10)							
	boardsize	**perc_ind_dir**	**Size**	**ROA**	**beta**	**pct_inc_stock**	**age**
boardsize	1.00						
perc_ind_dir	-0.05	1.00					
size	0.31	-0.10	1.00				
ROA	0.05	-0.10	-0.24	1.00			
beta	-0.10	0.06	0.13	-0.37	1.00		
pct_inc_stock	0.02	0.00	0.02	-0.17	0.11	1.00	
age	0.16	-0.02	0.30	0.05	-0.14	0.01	1.00

The results of the regression for pre-recession data are shown in Table 7 below. The total number of usable observations after data cleaning (removing missing and spurious values) is 251, with an adjusted R-square value of 0.5184. There are several key findings from the data during 2004-07. Consistent with existing literature, the percentage of independent directors on the board is negatively associated with the total CEO compensation. Dual leadership leads to higher CEO compensation is also confirmed by the results with a positive coefficient value as expected. PSUs pay less to their CEOs than their private counterparts. In addition, there is a negative influence of PSUs on total CEO compensation. Larger firms (with more total assets) pay higher compensation to their CEOs. Finally, percentage increase in stock price in two consecutive years leads to higher CEO compensation.

Table 7 : Pre-Recession Regression Results

PRE-RECESSION (2004-2007)						
Source	**SS**	**DF**	**MS**	**F (17, 233)**	16.83	
Model	250.8352	17	14.75501	**Prob. > F**	0	
Residual	204.2608	233	0.876656	**R^2**	0.5512	
Total	455.096	250	1.820384	**Adj. R^2**	**0.5184**	
				Root MSE	0.9363	
IDV	**Coefficient**	**Std. Err.**	**T**	**P > t**	**[95% Conf. Interval]**	
sector1	-0.33045	0.235797	-1.4	0.162	-0.7950223	0.134113
sector2	0.484302	0.429533	1.13	0.261	-0.361963	1.330567
sector3	-0.36003	0.237414	-1.52	0.131	-0.8277861	0.107719
sector4	-0.02275	0.240603	-0.09	0.925	-0.4967866	0.451286
boardsize	0.00755	0.01766	0.43	0.669	-0.0272428	0.042344
perc_ind_dir	**-0.92684**	0.524723	-1.77	**0.079**	-1.960645	0.106969
ceo_chair	**0.284716**	0.136282	2.09	**0.038**	0.016214	0.553218
psu	**-3.29921**	0.252264	-13.08	**0**	-3.796216	-2.8022
foreign	-0.44134	0.150091	-2.94	0.004	-0.7370458	-0.14563
size	0.353679	0.058721	6.02	**0**	0.2379873	0.469371
ROA	-0.38944	0.897935	-0.43	0.665	-2.158551	1.379668
beta	-0.16241	0.20704	-0.78	0.434	-0.5703181	0.245501
pct_inc_stock	**0.031309**	0.014893	2.1	**0.037**	0.0019678	0.060651
age	0.002525	0.003156	0.8	0.424	-0.0036926	0.008744
year1	0.28028	0.19848	1.41	0.159	-0.1107651	0.671325
year2	0.370585	0.19081	1.94	0.053	-0.0053485	0.746519
year3	0.632578	0.195349	3.24	0.001	0.2477021	1.017455
_cons	13.95159	0.665139	20.98	0	12.64114	15.26205

The results of the regression for post-recession data are shown in Table 8 below. The total number of usable observations after cleaning the data is 203, with an R-square value of 0.452. There are several key findings from the data during 2009-10 periods. Consistent with existing literature, dual leadership leads to higher CEO compensation is confirmed by the results with a positive coefficient value of 0.637492 (p-value of 0.00). PSUs pay less to their CEOs than their private counterparts. Moreover, as per the results, there is a negative influence of PSUs on total CEO compensation, with a high coefficient value of 2.6543 (p-value of 0.00). Larger firms (with more total assets) pay higher compensation to their CEOs (coefficient value of 0.287748 and p-value of 0.00). Increase in stock price variable is, however, negatively associated with the total CEO compensation during 2009-10 (See Table 8) and can be interpreted as an effect of recession.

Table 8 : Post-Recession Regression Results
POST-RECESSION (2009-2010)

PRE-RECESSION (2004-2007)						
Source	**SS**	**DF**	**MS**	**F (15, 187)**	12.14	
Model	144.4249	15	9.628327	**Prob > F**	**0**	
Residual	148.352	187	0.793326	**R^2**	0.4933	
Total	292.7769	202	1.44939	**Adj R^2**	**0.4526**	
				Root MSE	**0.89069**	
IDV	**Coefficient**	**Std. Err.**	**T**	**P > t**	**[95% Conf. Interval]**	
sector1	0.0051	0.247864	0.02	0.984	-0.48387	0.49407
sector2	0.002169	0.387922	0.01	0.996	-0.7630963	0.767435
sector3	-0.22503	0.209531	-1.07	0.284	-0.6383769	0.18832
sector4	0.382261	0.238451	1.6	0.111	-0.0881376	0.85266
boardsize	0.007356	0.018691	0.39	0.694	-0.0295153	0.044228
perc_ind_dir	-0.42598	0.560982	-0.76	0.449	-1.532651	0.680683
ceo_chair	0.637492	0.144577	4.41	0	0.352281	0.922702
psu	-2.6543	0.257032	-10.33	0	-3.16135	-2.14724
foreign	-0.0693	0.139775	-0.5	0.621	-0.3450412	0.206434
size	0.287748	0.062094	4.63	0	0.1652538	0.410242
ROA	1.136919	0.823045	1.38	0.169	-0.4867273	2.760565
beta	-0.24237	0.212915	-1.14	0.256	-0.6623901	0.177659
pct_inc_stock	-0.07924	0.071114	-1.11	0.267	-0.2195252	0.061051
age	0.000923	0.003211	0.29	0.774	-0.005411	0.007256
year1	0.26462	0.204421	1.29	0.197	-0.138647	0.667888
_cons	14.65935	0.72792	20.14	0	13.22335	16.09534

7. Analysis and Conclusion

This paper empirically analyses the effect of corporate governance, firm size and firm performance and increase in stock price on the compensation of the CEO in an emerging economy, India. Based on the above results, we can confirm some of the hypotheses initially laid out. Hypotheses 1b and 1c are supported by the results in both periods of study. Hypothesis 2 is weakly supported in the post-recession period of the study. Hypotheses 3a and 3c are strongly supported by the results. However, hypothesis 3b is rejected. Finally, hypothesis 4 is strongly supported in the pre-recession period (2004-07) but fails during the 2009-10 period, where there is a negative association between increase in stock price and total CEO compensation. This can be seen as an impact of the 2008 economic recession.

Overall, this study documents that board and ownership structure are associated with the level of CEO compensation, after controlling for the standard economic determinants of compensation (the firm's demand for a high-quality CEO, prior firm performance, and risk). As argued by previous researchers, corporate governance mechanisms can reduce the potential agency problem between managers and shareholders and, thereby influence the way firms set their compensation packages. With respect to the structure of the board-of-directors we find that CEO compensation is negatively associated with higher percentage of independent directors and positively associated with CEO also being the chairperson of the board. The empirical results indicate that there is a positive and significant relationship between firm size and the level of CEO compensation. Finally, stock price increase is positively associated with the total CEO compensation in the pre-recession years.

References

Abowd, John M. (1990). Does performance-based managerial compensation affect corporate performance? *Industrial and Labour Relations Review*, 43 (3), 52-73.

Amacom. (1975). *Executive Compensation Service: Top Management Report*. American Management Association: New York.

Banker, R.D., and Datar, S.M. (1989). Sensitivity, precision, and linear aggregation of signals for performance evaluation. *Journal of Accounting Research*, 27, 210-239.

Bhagat, S., and Black, B. (1997). *Do Independent Directors Matter? Working Paper*, University of Colorado: Boulder.

Boyd, B.K. (1994). Board control and CEO compensation. *Strategic Management Journal*, 15, 335-344.

Ciscel, D.H., and Carroll, T.M. (1980). The determinants of executive salaries: An econometric Survey. *Review of Economics and Statistics*, 62, 7-13.

Core, J.E., Holthausen, R.W., and Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, 51, 371-406.

Conyon, M.J. (1997). Corporate governance and executive compensation. *International Journal of Industrial Organization*, 15, 493-509.

Conyon ,M.J. and Murphy, K.J. (2000). The prince and the pauper? CEO pay in the United States and United Kingdom. *Economic Journal*, 110, 640-671.

Cyert, R., Kang, S., Kumar, P., and Shah, A. (1997). *Corporate governance and the level of CEO compensation*. Working Paper, Carnegie Mellon University.

Davila, Antonio and Fernando Penalva (2004). *Corporate governance and the weighting of performance measures in CEO compensation*. Working Paper No 556, IESE Business School, University of Navarra.

Fama, E.F. and Jensen, M.C. (1983). The separation of ownership and control. *Journal of Law and Economics*, 26, 301-325.

Finkelstein, S., and Hambrick, D. (1989). Chief executive compensation: A study of the intersection of markets and political processes. *Strategic Management Journal*, 10, 121-134.

Finkelstein, S., and D'Aveni, R.A. (1994). CEO duality as double-edged sword: How boards of directors balance entrenchment avoidance and unity of command. *Academy Journal of Management*, 37(5), 1079-1108.

Ghosh, A. (2003). *Board structure, executive compensation and firm performance in emerging economies: Evidence from India*. IGIDR Working Paper Series, IGIDR, Mumbai.

Ghosh, J. and Chandrasekhar, C.P. (2009). The costs of 'coupling': The global crisis and the Indian economy. Cambridge *Journal of Economics*, 33, 725-739

Gomez-Mejia, L. R., Larraza-Kintana, R.M., and Makri, M. (2003). The determinants of executive compensation in family-controlled public corporations. *Academy of Management Journal*, 46, 226-237.

Greenbury, S.R. (1995). *Directors' Remuneration*, Gee & Co. Ltd: London.

Jaiswall, M. (2005). *Key determinants of top management pay in Indian companies*, Ph.D. Thesis. Indian Institute of Management, Bangalore.

Jensen, M. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *Journal of Finance*, 48, 831-880.

KMB Report (1999). *Report of the Kumar Mangalam Birla Committee on Corporate Governance: Security and Exchange Board of India.*

Kumar, A. (2008). *Impending recession: India unlikely to escape its impact*. Accessed from www.tribuneindia.com.

Lambert, R., Larcker, D., and Weigelt, K. (1993). The structure of organizational incentives. *Administrative Science Quarterly*, 38, 438-461.

Martinez, J. and Santiso, J. (2003). Financial markets and politics: The confidence game in Latin American emerging economies. *International Political Science Review*, 24 (3), 363 - 395.

Ozkan, N. (2007). CEO compensation and firm performance: An empirical investigation of UK panel data. *Journal of Financial Economics*, G3.

Parthasarathy, A., Menon, K. and Bhattacherjee, D. (2006). Executive compensation, firm performance and governance: An empirical analysis. *Economic and Political Weekly*, September Issue.

Pfeffer, J. (1981). Power in Organizations. Pitman, Boston, MA.

Roberts, J. and Jones, M. (2009). Accounting for self interest in the credit crisis. *Accounting, Organizations and Society*, 34, 856-867.

Ramaswamy, K., Veliyath, R. and Gomes, L. (2000). A study of the determinants of CEO compensation in India. *Management International Review*, 40(2), 167-91.

Rosen, S. (1982). Authority, control and the distribution of earnings. Bell Journal of Economics, 13, 311-323.

Rosenstein, S., and Wyatt, J. (1990). Outside directors, board independence and shareholder wealth. *Journal of Financial Economics*, 26, 175-191.

Schaefer, S. (1998). The dependence of pay-performance sensitivity on the size of the firm, *Review of Economics and Statistics*, 80, 436-443.

SEBI Committee on Corporate Governance Report (2003). Under the chairmanship of N.R. Narayana Murthy (http://www.sebi.gov.in/cms/sebi_data/attachdocs/1293094958536.pdf)

Shivdasani, A. (1993). Board composition, ownership structure, and hostile takeovers. *Journal of Accounting and Economics*, 16, 167-198.

Smith, C.W., and Watts, R.L. (1992). The investment opportunity set and corporate financing, dividend, and financing policies. *Journal of Financial Economics*, 32, 262-292.

Subbarao, D. (2009). Impact of the global financial crisis on India collateral damage and response. Speech delivered at RBI Symposium.

Subrahmanyam, G. (2009). Global financial crisis of 2008-09: Triggers, trails, travails, and treatment. The IUP *Journal of Applied Economics*, 8, 32-47.

Talmor, E. and Wallace, J. (2001). *A unified analysis of executive pay: The case of the financial sector*, working paper SSRN.

Yermack, D. (1996). Higher market valuation for firms with a small board of directors. *Journal of Financial Economics*, 40, 185-211.

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