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Impact of Employee Compensation on Firm's Performance

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Abstract:
Compensation is not just the price for the services rendered by the employees but it has a major role to play in retaining the employees in the present service. This paper attempts to determine the relation between employee compensation and firm's performance. Compensation is a motivating force to work harder, ensure loyalty to the present position thereby avoiding job hopping. This study reveals a positive relation between employee compensation of chemical industry and the performance of the firms. Thus employers must ensure that the compensation is commensurate with the firm's performance in order to retain the talent in the industry.

1. Introduction

Traditionally compensation meant a consideration paid to the employees for the services rendered by them to the industrial unit. With the evolution of scientific management concepts such as scientific selection, training and incentive were coined which grab the attention of a lot of employers. The carrot and stick approach recognized for years made a distinction between efficient employees and inefficient. Rewarding the employees for satisfactory performance is no longer in vogue. Today employees in search for better employment prospects indulge in the act of job hopping in order to get the best deal. Thus it becomes imperative for organizations to accept the idea that employees demand that their compensation is linked to the performance of the firms. Thereby implying that organizations are supposed to compensate the employees in compliance with their financial performance.

Forbes reports that one of the most successful ways to engage employees and generate enthusiasm is to link employee pay to overall company performance and, in turn, the value of the stock. Equity participation has been declining these past few years, but that does not mean that will be the case in the future and linking employee interests to company stock should have a positive impact on the value of the company and its equity.

Previous researches have concentrated on the establishing a linkage between executive compensation and performance of the firms either measured by Tobin's q, sales or total assets. The paper makes an effort to test the hypothesis that there are no linkages between the compensation of employees and firm performance.

Unlike the previous researches this paper attempts to examine the link between compensation of employees and firm performance with respect to developing economy, India, emphasizing on chemical industry and employing standard OLS regression model to study the relation of firm's performance and the compensation of employees for a specific point in time.

1.1. Indian Chemical Industry

The Indian chemical industry currently valued at $108 billion accounts for 3% share of the global chemical market having a potential to emerge as one of the major destinations for chemical industries worldwide. Two distinct scenarios for the future emerge, based on how effectively the industry leverages its strengths and manages challenges. In the base case scenario, with current initiatives of industry & government, the Indian chemical industry could grow at 11% p.a. to reach size of $224 billion by 2017. However, the industry could aspire to grow much more and its growth potential is limited only by its aspirations.

The draft manufacturing policy recently approved by the Cabinet targets increasing the share of manufacturing in GDP to at least 25% by 2025 (from current 16%). It aims to create 100 million additional jobs through creation of National Investment and Manufacturing Zones (NIMZs) as mega investment regions, equipped with world class infrastructure. The chemical industry's R&D spends would need to go up significantly from current levels of less than 0.5% of sales to reach closer to global benchmarks of 4% of sales. On the human resources front, adequate educational infrastructure would be required to impart vocational training to develop additional 4.5 to 5 million skilled workers by 2017.

2. Literature Review

Previous researches have used varied control variables such as innovation (David et al 2014, Xiaojin et al 2014), size of firm (Venus 2011), research and development, advertising, CEO gender (Kelvin Lam et al 2014, Yu Liu et al 2013), compensation of employees (nuno 2008, Kelvin et al 2014, Michael 2005), environmental performance (Khaled 2005, Hiroki 2011, Eva 2012), corporate governance, corporate social responsibility(Seoki 2013), etc. to analyze the relationship with the performance of the firm.

This paper attempts to investigate the impact compensation of employees on the financial performance of firms.

In examining the link between firm performance and compensation of employees, previous studies have used other control variables like size of the firm (Nuno 2008, Mason 2002, Aditya 2006), shareholder wealth (Aditya 2006), Corporate governance (Aditya 2006, Ghosh 2003), total number of Board members (Nuno 2008), gender diversity (Kelvin 2013), academic credentials(Kelvin 2013).

Nuno (2008) analyses the link between firm performance, board structure and top executive payfor companies listed in Euronext Lisbon (Portuguese stock exchange).Nuno attempts to explain the link between executive pay and size of the firm using a two variable regression equation. The results reveal a positive relationship between pay and size of the firm. Further results indicate that doubling firm size increases executive pay by approximately 40%. He uses a two variable analysis to explain the relation between firm performance and executive pay. Annual stock return of the firm is taken as a measure of financial performance of the firm. The result of this two regression analysis suggests that board compensation is not significantly related to firm performance. His study then attempts a multivariate regression analysis to estimate the impact of other determinants of executive compensation. For this the study considers pay as dependent variable and annual stock return, size, risk, growth, total number of board members and number of non-executive members as control variables. The results indicate that the average compensation of board members is not significantly related to stock returns but returns are related to the variable component of executive pay. Nuno also used ROA and ROI as a measure of financial performance as Portuguese companies do not uses financial markets as source of financing but the results were similar.

Aditya et al (2006) studied the link between executive compensation and financial performance for a sample of 409 Indian Companies. Net Profit Margin (NPM) and Return on Assets (ROA)are used as measures of financial performance. The authors test the hypothesis that NPM (or ROA) of a firm and the total CEO pay will be positively related. Data sources include Capitaline, Prowess and NSE. Standard OLS regression model was used to carry out a cross sectional study of executive compensation. In contrast to Ramaswamy et al (2000) and Ghosh (2003), the results show that none of the profitability measures can significantly explain the variation in the total CEO pay across firms.

ArijitGhosh (2003) examines the effect of corporate governance, firm performance and corporate diversification on board as well as CEO compensation and its components in the context of Indian manufacturing sector from 1997-2002 using a panel data for 462 firms.CEO compensation is taken as the dependent variable and ROA, Tobin's Q, Sales, risk, advertising expenditure, R&D expenditure, age, experience and education are considered as control variables. The findings of the paper indicate that the board compensation largely depends on current and past year firm performance and diversification, whereas CEO compensation depends only on current year firm performance.

Hajah et al (2011) investigates the relationship between executive compensation and company performance, size and managerial controls in Sarawak for 22 Public Listed Companies from 2004-2006. The results show that there is weak positive relationship between executive compensation and company performance (ROS) and size (sales), while no relationship was found between executive compensation and the managerial control.

Mason and Gerard (2002) researched on the determinants of executive compensation specifically on the CEO and showed that the pay scheme provided to the members of the top team had significant implications for firms' subsequent performance.

Christian and Niels (2008) investigate the link between dispersion of wage increases ($wage_t$/ $wage_{t-1}$) and firm performance (value added) using cross- section analysis. Other control variables include workforce education level, percentage female, percentage blue-collar, firm size and industry branch. Datain relation to labour is taken from Denmark Statistics IDA (Integrated Database for Labour market research). The study indicates a positive relationship between dispersion of wages levels and firm performance.

Mark et al (1992) examined the relationship between executive compensation and firm performance using data from the Disclosure database of Fortune 500 companies. Gross profit, Current Ratio and Total Assets are used as a measure of financial performance of the firms. Basic pay plus bonus are used as a measure of executive compensation. The results indicate a small but significant relationship between executive pay and total assets of the firm. Regression results reveal that not more than 13% of the variance in executive pay could be accounted for using measures of corporate profitability (gross profit), efficiency (current ratio) and size (total assets) as measure of firm performance.

Kelvin Lamet al (2013) studied the impact of CEO gender and executive compensation on the firm's performance for Chinese firms for 2000-2008. Data for this study is extracted from two sources namely CSMAR (Chinese Stock Market Financial Statement Database) for financial variables and China Listed Firm's Corporate Governance Research Database. This study conducts two regression analyses, one to determine the factors that affect gender participation as CEO and two to analyse the relation between firm performance and gender participation and executive compensation. This study considers firm performance as a dependent variable measured by ROA and ROE while gender, age, tenure, assets, state ownership and long term debt as the control variables. The results reveal an inconclusive association between CEO gender and firm performance. Also the female CEO's receive less compensation than the males.

3. Research Methodology

To achieve the main objective of this paper which is to determine the impact of employee compensation on the performance of the chemical firms of India, firm level data of the selected variables discussed below of 105 chemical firms is extracted from Prowess 4.1 database of CMIE for the year 2012.Other control variables of the study include research and development, fuel, raw material and number of employees.

3.1. Data Used

To estimate the standard OLS regression model investigating the relationship between compensation of employees and firm performance the following variables are utilized:

1. Total Assets: Total Assets of the firm is taken as the indicator of the firm performance. It is a sum total of all the assets held by a company as on the last day of an accounting period. It represents the combination of cash and non-cash equivalents - Net fixed assets, Capital work in progress, Investments, Inventories, Receivables, Loans & Advances, Cash & bank balances, Deferred tax assets and Miscellaneous expenses not written off. This is taken as the dependent variable.
2. Compensation to employees: Compensation to employees includes payments made in cash or kind by a company to or on behalf of all its employees. It includes monetary value of perquisites provided to employee. Represents the cost incurred by the firm in hiring, retaining and managing its workforce, including workers, supervisors and managers.
3. Fuel: Expenditure on the energy like power and fuel, and water etc. used by the manufacturers for the production of goods and services.
4. Research & Development expense: It is a measure of the amount of money spent by a firm on R&D related activities in a given year.
5. Raw material: Expenditure on raw material.
6. Number of employees: Total number of employees

3.2. Model Specifications

A standard OLS regression model is used to carry out a cross sectional study of the impact of compensation of employees and firm performance. To measure firm performance various researches have utilized Tobin's q, sales, ROI, ROA and Total assets. This paper uses total assets as a measure of firm's performance. Though the focus of the study is to examine the relation between compensation of employees and firm performance but the study utilizes a multivariate regression model which includes research and development, fuel, raw material and number of employees as other control variables. The regression function is given as follows:

TOTAL ASSETS = $\beta_0 + \beta_1 *$ R&D + $\beta_2 *$ COMPENSATION to EMPLOYEE +$\beta_3 *$ FUEL + $\beta_4 *$ RAW MATERIAL + $\beta_5 *$ NUMBER of EMPLOYEES (1)

The regression function is estimated using OLS.

4. Results and Discussion

As already mentioned this study uses data for the year 2012 of 105 firms in chemical industry of India. Data is extracted from Prowess 4.1 database of CMIE. Information on the total assets, expenditure on research and development, fuel, raw material and number of employees is collected. Table 1 provides the results of the standard regression equation (1) estimated using OLS.

ltot_asset	**Coef.**	**Std. Err.**	**t**	**P>|t|**	**[95% Conf.Interval]**	
lraw_material	0.406713	0.050449	8.06	0.000*	0.30661	0.506815
lcomp_empl	0.402936	0.119171	3.38	0.001*	0.166474	0.639397
Lfuel	0.080088	0.050562	1.58	0.116	-0.02024	0.180414
lno_employees	0.233341	0.13358	1.75	0.084**	-0.03171	0.498393
Lrd	0.015517	0.037006	0.42	0.676	-0.05791	0.088946
_cons	1.162883	0.438213	2.65	0.009	0.293373	2.032393
Number of Observation	105					
R-square	0.9125					
Pseudo R-square	0.9081					

Table 1: Results of standard OLS regression function
'', '**' Significant at 1% and 10% level of significance respectively*

Among the estimated coefficients of regression equation, the coefficient of interest is compensation of employees which is positive and significant at 1% level. This implies that a percentage increase in the compensation of employees there is 40% increase in the firm performance measured by total assets of the firm. The results indicate existence of relationship between chemical firm's performance and the compensation of the employees. This could be due to increased motivation for an employee because of increased compensation he is willing to work harder so as to enhance the performance of the firm.

Similarly as is evident from the results the coefficient of raw material and number of employees is significant and positive. This implies that a percentage increase in raw material causes a 40% increase in the firm performance keeping the other control variables constant. A percentage increase in the number of employees causes a 23% increase in the firm performance.

The R^2 value of about 0.9125 means that about 91.25 percentage of variation in firm performance measured by total assets is explained by research and development, compensation of employees, fuel, raw materials and number of employees, a fairly high value considering that the maximum value of R^2 can at most be one. Adjusted R^2 means R^2 adjusted for degree of freedom. The adjusted R^2

is 90.81% also, adjusted $R^2 < R^2$ which implies that as the number of X variable increases, the adjusted R^2 increases less than the unadjusted R^2.
Further the study also attempts to test the data for presence of multicollinearity, heteroskedasticity, autocorrelation and normality.

4.1. Test for Multicollinearity Using Variance Inflationary Factor
Multicollinearity originally meant existence of a perfect or exact, linear relationship among some or all explanatory variables of a regression model. Table 2 shows the results of test of multicollinearity using the VIF method.
Variance inflation factors (VIF) is used to detect multicollinearity. The variance inflation factors measure how much the variances of the estimated regression coefficients are inflated as compared to when the predictor variables are not linearly related. Variance inflation factors greater than 10 are taken as an indication that the multicollinearity may be unduly influencing the least squares estimates. In our case the mean VIF is 5.97, indicating absence of Multicollinearity. Absence of multicollinearity implies that lack of variability in the explanatory variables.

Variable	VIF	1/VIF
lcomp_empl	11.42	0.087546
lno_employ~s	9.86	0.101385
lraw_mater~l	3.35	0.298588
Lfuel	3.03	0.33032
Lrd	2.2	0.454461
Mean VIF	**5.97**	

Table 2: Results of test of multicollinearity

4.2. Test for Heteroskedasticity
Homoscedasticity is an assumption of classical linear regression model which requires that variance of each disturbance term is a constant number. The dropping of this assumption is tagged as a situation of hetreroskedasticity. The test employed to detect hetroskedasticity is Breusch- Pagan test.
An insignificant result indicates lack of heteroskedasticity. That is, such a result indicates the presence of equal variance of the residuals along the predicted line. This condition is otherwise known as homoskedasticity. In our case as we are rejecting the Ho: Constant variance across all variables, we conclude the presence of Heteroskedasticity in the error term.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of ltot_asset
chi2 (1) = 0.93 Prob> chi2 = 0.3359

Table 3: Result for test of Heteroskedasticity

4.3. Test for Autocorrelation Using Durbin-Watson Test
Autocorrelation implies correlation between member of series of observation ordered in time (in time series data) or space (in cross sectional data). The classical regression model assumes that such autocorrelation does not exist in the disturbances, u_i.
Durbin Watson is employed to test for presence of autocorrelation. The Durbin Watson statistical values lies between 0 – 4. A Durbin Watson statistical value of 2 means no serial auto correlation. Less than 2 means positive serial correlation and greater than 2 means negative serial correlation.
Number of gaps in sample: 101
Durbin-Watson d-statistic (6, 105) = 1.3268069

4.4. Test for Normality
Smirnov-Kolmogorov test is used to test the normality of the residuals. This tests the cumulative distribution of the residuals against that of the theoretical normal distribution with a chi-square test. To determine whether there is a statistically significant difference. The null hypothesis is that there is no difference. When the probability is less than .05, we reject the null hypothesis and infer that the residuals are non-normally distributed in our case.

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
Res	105	0.0001	0.0526	14.75	0.0006

Table: 4 Result of test of normality using Smirnov-Kolmogorov method

5. Conclusion

The present paper deals with the empirical analysis of firm level data of chemical industry to estimate the impact of compensation of employees on the performance of the firms for the year 2012. The analysis reveals that the coefficient for compensation of employees is positive and significant indicating that there is a relationship between compensation and firm performance for chemical firms specifically. Thus it is imperative for the management to consider linking the compensation of the employees with the performance of chemical firms so that the employees are motivated to put in their best effort to achieve higher firm performance. Besides linkages of compensation and firm performance would also ensure loyalty of the employee and ensure their retention with the firm. Other control variables which are significant and positive include number of employees.

The paper also test the data extracted for existence of multicollinearity, hetroskedasticity, autocorrelation and normality. The results reveal that the data does not really violate the assumptions of multicollinearity of the classical linear regression model.

Thus it is no exaggeration to point out that the human resource departments may consider these results while designing a suitable compensation structure for their employees.

6. References

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